FOR AGENCY USE ONLY	
	Notes:
JPA# 18-0753	

RECEIVED
MAY 30 2018
MARINE RESOURCES COMMISSION

APPLICANTS

PLEASE PRINT OR TYPE ALL ANSWERS. If a question does not apply to your project, please print N/A (not applicable) in the space provided. ***If additional space is needed, attach extra 8 ½ x 11 inch sheets of paper.***

Check all that apply			
Pre-Construction Notification (PCN) ☒ NWP # 12 *(For Nationwide Permits ONLY - No DEQ-VWP permit writer will be assigned)*	SPGP ☐	DEQ Reapplication ☐ Existing permit number: N/A	Receiving federal funds ☐ Agency providing funding: N/A

PREVIOUS ACTIONS RELATED TO THE PROPOSED WORK (Include all federal, state, and local pre-application coordination, site visits, previous permits, or applications whether issued, withdrawn, or denied)

Historical information for past permit submittals can be found online with VMRC - https://webapps.mrc.virginia.gov/public/habitat/ - or VIMS - http://ccrm.vims.edu/perms/newpermits.html

Agency	Action / Activity	Permit/Project number, including any non-reporting Nationwide permits previously used (e.g., NWP 13)	Date of Action	If denied, give reason for denial
FERC	Certificate of Public Convenience ar	CP18-186-00	Pending	Application submitted April 11, 2(
N/A	N/A	N/A	N/A	N/A

1. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR INFORMATION
The applicant(s) is/are the legal entity to which the permit may be issued (see How to Apply at beginning of form). The applicant(s) can either be the property owner(s) or the person/people/company(ies) that intend(s) to undertake the activity. The agent is the person or company that is representing the applicant(s). If a company, please also provide the company name that is registered with the State Corporation Commission (SCC), or indicate no registration with the SCC.

Legal Name(s) of Applicant(s)			Agent (if applicable)		
Transcontinental Gas Pipe Line Company c/o Joseph Dean			Cardno, Inc. c/o Darren Bishop		
Mailing address			Mailing address		
2800 Post Oak Blvd			3905 Crescent Park Drive		
City	State	ZIP Code	City	State	ZIP Code
Houston	TX	77056	Riverview	FL	33578
Phone number w/area code	Fax		Phone number w/area code	Fax	
713.215.3427	713-215-9635		727.424.0435		
Mobile	E-mail		Mobile	E-mail	
	Joseph.Dean@Williams.com			darren.bishop@cardno.com	
State Corporation Commission Name and ID number (if applicable) TO395345			State Corporation Commission Name and ID number (if applicable) N/A		

Certain permits or permit authorizations may be provided via electronic mail. If the applicant wishes to receive their permit via electronic mail, please provide an e-mail address here: chad.burrows@williams.com and darren.bishop@cardno.co

1. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR INFORMATION (Continued)

Property owner(s) legal name, if different from applicant Same as Applicant				Contractor, if known No yet known			
Mailing address Same as Applicant				Mailing address No yet known			
City Same as Applicant	State N/A	ZIP code N/A		City No yet known	State N/A	ZIP code N/A	
Phone number w/area code Same as Applicant	Fax Same as Applicant			Phone number w/area code No yet known	Fax No yet known		
Mobile Same as Applicant	E-mail Same as Applicant			Mobile No yet known	E-mail No yet known		
State Corporation Commission Name and ID number (if applicable) N/A				State Corporation Commission Name ID number (if applicable) N/A			

2. PROJECT LOCATION INFORMATION

(Attach a copy of a detailed map, such as a USGS topographic map or street map showing the site location and project boundary, so that it may be located for inspection. Include an arrow indicating the north direction. Include the drainage area if the SPGP box is checked on Page 7.)

Street Address (911 address if available) See JPA Support Document	City/County/ZIP Code See JPA Support Document
Subdivision N/A	Lot/Block/Parcel # N/A

Name of water body(ies) within project boundaries and drainage area (acres or square miles).
See JPA Support Document

Tributary(ies) to: See JPA Support Document
Basin: See JPA Support I Sub-basin: See JPA Support Document
(*Example: Basin: James River Sub-basin: Middle James River*)

Special Standards (based on DEQ Water Quality Standards 9VAC25-260 et seq.): None known

Project type (check one)

- ☐ Single user (private, non-commercial, residential)
- ☑ Multi-user (community, commercial, industrial, government)
- ☐ Surface water withdrawal

Latitude and longitude at center of project site (decimal degrees): See JPA Support Document / See JPA Support Document
(Example: 37.33164/-77.68200)

USGS topographic map name: See JPA Support Document

8-digit USGS Hydrologic Unit Code (HUC) for your project site (See http://cfpub.epa.gov/surf/locate/index.cfm): See
If known, indicate the 10-digit and 12-digit USGS HUCs (see *http://dswcapps.dcr.virginia.gov/htdocs/maps/HUExplorer.htm* :
JPA Support Document See JPA Support Document

Name of your project (*Example: Water Creek driveway crossing*) Southeastern Trail Project

Is there an access road to the project? ☑ Yes ☐ No. If yes, check all that apply: ☑ public ☑ private ☑ improved ☑ unimproved

Total size of the project area (in acres): 137.09 acres

2. PROJECT LOCATION INFORMATION (Continued)

Provide driving directions to your site, giving distances from the best and nearest visible landmarks or major intersections:

See JPA Support Document

Does your project site cross boundaries of two or more localities (i.e., cities/counties/towns)? ☑ Yes ☐ No

If so, name those localities: Fauquier County and Prince William County

3. DESCRIPTION OF THE PROJECT, PROJECT PRIMARY AND SECONDARY *PURPOSES*, PROJECT *NEED*, INTENDED USE(S), AND ALTERNATIVES CONSIDERED (Attach additional sheets if necessary)

- The purpose and need must include any new development or expansion of an existing land use and/or proposed future use of residual land.
- Describe the physical alteration of surface waters, including the use of pilings (#, materials), vibratory hammers, explosives, and hydraulic dredging, when applicable, and *whether or not tree clearing will occur* (include the area in square feet and time of year).
- Include a description of alternatives considered and measures taken to avoid or minimize impacts to surface waters, including wetlands, to the maximum extent practicable. Include factors such as, but not limited to, alternative construction technologies, alternative project layout and design, alternative locations, local land use regulations, and existing infrastructure
- For utility crossings, include both alternative routes and alternative construction methodologies considered
- For surface water withdrawals, public surface water supply withdrawals, or projects that will alter in-stream flows, include the water supply issues that form the basis of the proposed project.

See JPA Support Document

Date of proposed commencement of work (MM/DD/YYYY)	Date of proposed completion of work (MM/DD/YYYY)
08/01/2019	11/01/2020
Are you submitting this application at the direction of any state, local, or federal agency? ☐ Yes ☑ No	Has any work commenced or has any portion of the project for which you are seeking a permit been completed? ☐ Yes ☑ No

If you answered "yes" to either question above, give details stating when the work was completed and/or when it commenced, who performed the work, and which agency (if any) directed you to submit this application. In addition, you will need to clearly differentiate between completed work and proposed work on your project drawings.

Not Applicable

Are you aware of any unresolved violations of environmental law or litigation involving the property? ☐ Yes ☑ No

(If yes, please explain)

Not Applicable

4. PROJECT COSTS

Approximate cost of the entire project, including materials and labor: $ 360,000,000
Approximate cost of only the portion of the project affecting state waters (channelward of mean low water in tidal areas and below ordinary high water mark in nontidal areas): $ 1,400,000

5. PUBLIC NOTIFICATION (Attach additional sheets if necessary)

Complete information for all property owners adjacent to the project site and across the waterway, if the waterway is less than 500 feet in width. If your project is located within a cove, you will need to provide names and mailing addresses for all property owners within the cove. If you own the adjacent lot, provide the requested information for the first adjacent parcel beyond your property line.

Failure to provide this information may result in a delay in the processing of your application by VMRC.

Property owner's name	Mailing address	City	State	ZIP code
See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document

Name of newspaper having general circulation in the area of the project: See JPA Support Document
Address and phone number (including area code) of newspaper See JPA Support Document

Have adjacent property owners been notified with forms in Appendix A? ☐ Yes ☑ No (attach copies of distributed forms)

6. THREATENED AND ENDANGERED SPECIES INFORMATION

Please provide any information concerning the potential for your project to impact state and/or federally threatened and endangered species (listed or proposed). Attach correspondence from agencies and/or reference materials that address potential impacts, such as database search results or confirmed waters and wetlands delineation/jurisdictional determination. Include information when applicable regarding the location of the project in Endangered Species Act-designated or -critical habitats. Contact information for the U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, Virginia Dept. of Game and Inland Fisheries, and the Virginia Dept. of Conservation and Recreation-Division of Natural Heritage can be found on page 4 of this package.

7. HISTORIC RESOURCES INFORMATION

Note: Historic properties include but are not limited to archeological sites, battlefields, Civil War earthworks, graveyards, buildings, bridges, canals, etc. Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the USACE from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the USACE, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant.

Are any historic properties located within or adjacent to the project site? ☑ Yes ☐ No ☐ Uncertain
If Yes, please provide a map showing the location of the historic property within or adjacent to the project site.

Are there any buildings or structures 50 years old or older located on the project site? ☑ Yes ☐ No ☐ Uncertain
If Yes, please provide a map showing the location of these buildings or structures on the project site.

Is your project located within a historic district? ☑ Yes ☐ No ☐ Uncertain

If Yes, please indicate which district: See JPA Support Document

7. HISTORIC RESOURCES INFORMATION (Continued)

Has a survey to locate archeological sites and/or historic structures been carried out on the property?
☑ Yes ☐ No ☐ Uncertain

If Yes, please provide the following information: Date of Survey: 01/02/2018

Name of firm: Cardno, Inc.

Is there a report on file with the Virginia Department of Historic Resources? ☑ Yes ☐ No ☐ Uncertain

Title of Cultural Resources Management (CRM) report: See JPA Support Document

Was any historic property located? ☑ Yes ☐ No ☐ Uncertain

8. WETLANDS, WATERS, AND DUNES/BEACHES IMPACT INFORMATION

Report each impact site in a separate column. If needed, attach additional sheets using a similar table format. Please ensure that the associated project drawings clearly depict the location and footprint of each numbered impact site. For dredging, mining, and excavating projects, use Section 17.

	Impact site number 1	Impact site number 2	Impact site number 3	Impact site number 4	Impact site number 5
Impact description (use all that apply): F=fill EX=excavation S=Structure T=tidal NT=non-tidal TE=temporary PE=permanent PR=perennial IN=intermittent SB=subaqueous bottom DB=dune/beach IS=hydrologically isolated V=vegetated NV=non-vegetated MC=Mechanized Clearing of PFO *(Example: F, NT, PE, V)*	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document
Latitude / Longitude (in decimal degrees)	See JPA Support Dc	See JPA Support Dc	See JPA Support Dc	See JPA Support Dc	See JPA Support Dc
Wetland/waters impact area (square feet / acres)	See JPA Support Dc	See JPA Support Dc	See JPA Support Dc	See JPA Support Dc	See JPA Support Dc
Dune/beach impact area (square feet)	N/A	N/A	N/A	N/A	N/A
Stream dimensions at impact site (length and average width in linear feet, and area in square feet)	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document
Volume of fill below Mean High Water or Ordinary High Water (cubic yards)	N/A	N/A	N/A	N/A	N/A

8. WETLANDS/WATERS IMPACT INFORMATION (Continued)					
Cowardin classification of impacted wetland/water or geomorphological classification of stream *Example wetland: PFO; Example stream: 'C' channel and if tidal, whether vegetated or non-vegetated wetlands per Section 28.2-1300 of the Code of Virginia*	See JPA Support Documentt	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document
Average stream flow at site (flow rate under normal rainfall conditions in cubic feet per second) and method of deriving it (gage, estimate, etc.)	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document
Contributing drainage area in acres or square miles (*VMRC cannot complete review without this information*)	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document
DEQ classification of impacted resource(s): Estuarine Class II Non-tidal waters Class III Mountainous zone waters Class IV Stockable trout waters Class V Natural trout waters Class VI Wetlands Class VII http://leg1.state.va.us/cgi-bin/legp504.exe?000+reg+9VAC25-260-50	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document	See JPA Support Document
For DEQ permitting purposes, also submit as part of this section a wetland and waters boundary delineation map – see (3) in the Footnotes section in the form instructions.					
For DEQ permitting purposes, also submit as part of this section a written disclosure of all wetlands, open water, or streams that are located within the proposed project or compensation areas that are also under a deed restriction, conservation easement, restrictive covenant, or other land-use protective instrument.					

9. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR CERTIFICATIONS

READ ALL OF THE FOLLOWING CAREFULLY BEFORE SIGNING

PRIVACY ACT STATEMENT: The Department of the Army permit program is authorized by Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection Research and Sanctuaries Act of 1972. These laws require that individuals obtain permits that authorize structures and work in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters prior to undertaking the activity. Information provided in the Joint Permit Application will be used in the permit review process and is a matter of public record once the application is filed. Disclosure of the requested information is voluntary, but it may not be possible to evaluate the permit application or to issue a permit if the information requested is not provided.

CERTIFICATION: I am hereby applying for permits typically issued by the DEQ, VMRC, USACE, and/or Local Wetlands Boards for the activities I have described herein. I agree to allow the duly authorized representatives of any regulatory or advisory agency to enter upon the premises of the project site at reasonable times to inspect and photograph site conditions, both in reviewing a proposal to issue a permit and after permit issuance to determine compliance with the permit.

In addition, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

9. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR CERTIFICATIONS (Continued)

Is/Are the Applicant(s) and Owner(s) the same? ☑ *Yes* ☐ *No*

Legal name & title of Applicant	Second applicant's legal name & title, if applicable
Transcontinental Gas Pipe Line Company	N/A
Applicant's signature	Second applicant's signature
	N/A
Date 5/25/18	Date N/A
Property owner's legal name, if different from Applicant	Second property owner's legal name, if applicable
N/A	N/A
Property owner's signature, if different from Applicant	Second property owner's signature
N/A	N/A
Date N/A	Date N/A

CERTIFICATION OF AUTHORIZATION TO ALLOW AGENT(S) TO ACT ON APPLICANT'S(S') BEHALF (IF APPLICABLE)

I (we), Transcontinental Gas Pipe Line Company, LL (and) N/A ,
APPLICANT'S LEGAL NAME(S) – *complete the second blank if more than one Applicant*

hereby certify that I (we) have authorized Cardno, Inc. (and) N/A
AGENT'S NAME(S) – *complete the second blank if more than one Agent*

to act on my (our) behalf and take all actions necessary to the processing, issuance, and acceptance of this permit and any and all standard and special conditions attached. I (we) hereby certify that the information submitted in this application is true and accurate to the best of my (our) knowledge.

Applicant's signature	Second applicant's signature, if applicable
	N/A
Date 5/25/18	Date N/A
Agent's signature and title Senior Consultant	Second agent's signature and title, if applicable
	N/A
Date 5/25/18	Date N/A

CONTRACTOR ACKNOWLEDGEMENT (IF APPLICABLE)

I (we), N/A (and) N/A ,
APPLICANT'S LEGAL NAME(S) – *complete the second blank if more than one Applicant*

have contracted N/A (and) N/A
CONTRACTOR'S NAME(S) – *complete the second blank if more than one Contractor*

to perform the work described in this Joint Permit Application, signed and dated N/A.

I (we) will read and abide by all conditions as set forth in all federal, state, and local permits as required for this project. I (we) understand that failure to follow the conditions of the permits may constitute a violation of applicable federal, state, and local statutes and that we will be liable for any civil and/or criminal penalties imposed by these statutes.
In addition, I (we) agree to make available a copy of any permit to any regulatory representative visiting the project site to ensure permit compliance. If I (we) fail to provide the applicable permit upon request, I (we) understand that the representative will have the option of stopping our operation until it has been determined that we have a properly signed and executed permit and are in full compliance with all of the terms and conditions.

Contractor's name or name of firm (printed/typed)	Contractor's or firm's mailing address	
N/A	N/A	
Contractor's signature and title	Contractor's license number	Date
N/A	N/A	N/A
Applicant's signature	Second applicant's signature, if applicable	
N/A	N/A	
Date	Date	
N/A	N/A	

19. NONTIDAL STREAM CHANNEL MODIFICATIONS FOR RESTORATION OR ENHANCMENT, or TEMPORARY OR PERMANENT RELOCATIONS (Continued)

Will low-flow channels be maintained in the modified stream channel? ☐ Yes ☐ No.
Describe how:

Will any structure(s) be placed in the stream to create riffles, pools, meanders, etc.? ☐ Yes ☐ No
If yes, please explain:

20. UTILITY CROSSINGS

Type of crossing: ☐ overhead ☑ trenched ☐ directionally-drilled

Method of clearing corridor of vegetation (check all that apply): ■ mechanized land clearing that disturbs the soil surface
■ cutting vegetation above the soil surface

Describe the materials to be used in the installation of the utility line (including gravel bedding for trenched installations, bentonite slurries used during direction-drilling, etc.) and a sequence of events to detail how the installation will be accomplished (including methods used for in-stream and dry crossings).

See JPA Support Document

Will the proposed utility provide empty conduits for any additional utilities that may propose to co-locate at a later date? ☐ Yes ☑ No.

For overhead crossings over navigable waterways (including all tidal waterways), please indicate the height of other overhead crossings or bridges over the waterway relative to mean high water, mean low water, or ordinary high water mark:

N/A-no navigable waterways crossed

Nominal system voltage, if project involves power lines: N/A

Total number of electrical circuits: N/A

Will there be an excess of excavated material? ☐ Yes ☑ No
If so, describe the method that will be undertaken to dispose of, and transport, the material to its permanent disposal location and give that location:

N?A

Will any excess material be stockpiled in wetlands? ☐ Yes ☑ No
If so, will the stockpiled material be placed on filter fabric or some other type of impervious surface? ☐ Yes ☑ No

Will permanent access roads be placed through wetlands/streams? ☐ Yes ☑ No
If yes, will the roads be (check one) ☐ at grade ☐ above grade?

Will the utility line through wetlands/waters be continually maintained (e.g. via mowing or herbicide)? ☑ Yes ☐ No
If maintained, what is the maximum width? 50 feet

21. ROAD CROSSINGS

Have you conducted hydraulic studies to verify the adequacy of the culverts? ☐ Yes ☑ No
If so, please attach a copy of the hydraulic study/report.
Virginia Department of Transportation (VDOT) standards require that the backwater for a 100 year storm not exceed 1 foot for all road, culvert, and bridge projects within FEMA-designated floodplains. Virginia Department of Environmental Quality (DEQ) requires pipes and culverts 24 inches or less in diameter to be countersunk three inches below the natural stream bed elevations, and pipes and culverts greater than 24 inches to be countersunk at least six inches below the natural stream bed elevations. Hydraulic capacity is determined based on the reduced capacity due to the countersunk position.

Will the culverts be countersunk below the stream bottom? ☐ Yes ☐ No. If no, explain:

N/A - no culverts proposed

If the project entails a bridged crossing and there are similar crossings in the area, what is the vertical distance above mean high water, mean low water, or ordinary high water mark of those similar structures? N/A feet above N/A
For all bridges proposed over navigable waterways (including all tidal water bodies), you will be required to contact the U.S. Coast Guard to determine if a permit is required of their agency.

On separate sheets of paper, describe the materials to be used, the method of construction (including the use of cofferdams), the sequence of construction events, and if bedrock conditions may be encountered. Include cross-sections and profile plans of the culvert crossings including wing walls or rip rap.

22. IMPOUNDMENTS, DAMS, AND STORMWATER MANAGEMENT FACILITIES

If the impoundment or dam is a component of a water withdrawal project, also complete Sections 24 through 26.

Will the proposed impoundment, dam, or stormwater management facility be used for agricultural purposes (e.g., in the operation of a farm)? For DEQ permitting purposes, a farm is considered to be a property or operation that produces goods for market.
☐ Yes ☐ No

What type of materials will be used in the construction (earth, concrete, rock, etc.)? _____

What is the source of these materials? _____

Provide the dimensions of proposed impoundment, dam, or stormwater management facility, including the height and width of all structures.

Storage capacity* of impoundment: _____acre-feet *should be given for the normal pool of recreational or farm ponds, or design pool for stormwater management ponds or reservoirs (the elevation the pond will be at for the design storm, e.g., 10-year, 24-hour storm)	Surface area** of impoundment: _____acres **should be given for the normal pool of recreational or farm ponds, or design pool for stormwater management ponds or reservoirs (the elevation the pond will be at for the design storm, e.g., 10-year, 24-hour storm)

Is the proposed project excluded from the Virginia Dam Safety Regulations? ☐ Yes ☐ No ☐ Uncertain

If not excluded, does your proposed project comply with the Virginia Dam Safety Regulations? ☐ Yes ☐ No ☐ Uncertain

Does the proposed design include a vegetation management area per §10.1-609.2? ☐ Yes ☐ No ☐ Uncertain
If your answer to these questions is no or uncertain, you should contact the Virginia Department of Conservation and Recreation's Dam Safety Program at (804) 371-6095, or reference the regulations on the Web at
http://www.dcr.virginia.gov/dam_safety_and_floodplains/index.shtml

For stormwater management and flood control facilities:

Design storm event: _____year storm Retention time: _____hours

Current average flow (flow rate under normal rainfall conditions): _____cfs

Method used to derive average flow: _____

Proposed peak outflow for the design storm provided above: _____cfs

Has the facility been designed as an Enhanced Extended Detention Basin or an Extended Detention Basin in accordance with the Minimum Standard 3.07 of the Virginia Stormwater Management Handbook, Volume I (published by the Virginia Department of Conservation and Recreation, 1999), or in accordance with the latest version of this handbook? ☐ Yes ☐ No

Transcontinental Gas Pipe Line Company, LLC

Standard Joint Permit Application

Southeastern Trail Project

May 2018

Table of Contents

Attachments

Acronyms

ATWS	Additional Temporary Workspace
BMP	Best Management Practices
BO	Biological Opinion
Cardno	Cardno, Inc.
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO2e	Carbon Dioxide Equivalent
CVEC	Central Virginia Electric Cooperative
CWA	Clean Water Act
DNH	Division of Natural Heritage
ECDs	Erosions Control Devices
EI	Environmental Inspectors
FERC	Federal Energy Regulatory Commission
HDD	Horizontal Directional Drill
HUC	Hydrologic Unit Code
JPA	Standard Joint Permit Application
Lb/hr	Pounds per Hour
Mdt/d	One Thousand Dekatherms per Day
MP	Milepost
MLV	Mainline Valve
NOx	Nitrogen Oxides
NWP	Nationwide Permit
OD	Outside Diameter
OHWM	Ordinary High Water Mark
PCN	Pre-construction Notification
PEM	Palustrine Emergent
PFO	Palustrine Forested
PLAN	Transco Upland Erosion Control, Revegetation, and Maintenance Plan
PM	Particle Matter
Procedures	Transco Wetland and Waterbody Construction and Mitigation Procedures
Project	Southeastern Trail Project
ROW	Rights-of-Way
RPAs	Resource Protection Areas
SHPO	State Historic Preservation ffice

SO_2	Sulfur Dioxide
TMDL	Total Maximum Daily Load
TPY	Tons Per Year
Transco	Transcontinental Gas Pipe Line Company, LLC
US	United States
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VOC	Volatile Organic Compunds

Applicants

Cardno, Inc (Cardno) has prepared this Standard Joint Permit Application (JPA) – Supporting Document to provide additional information for the Transcontinental Gas Pipe Line Company, LLC (Transco) Southeastern Trail Project.

Transco is proposing to provide 296.375 thousand dekatherms per day (Mdt/d) of additional firm transportation capacity from the Pleasant Valley Interconnect facility (Dominion Energy Cove Point Pipeline) in Fairfax County, Virginia to the existing Station 65 pooling point located in St. Helena Parish, Louisiana. The project is referred to as the Southeastern Trail Project (Project). As detailed below, the Project will consist of 7.72 miles of new natural gas pipeline (Manassas Loop) located along the existing Transco Mainline, compressor station horsepower additions at three existing facilities in Virginia (Station 185, Station 175, and Station 165), reversal and / or deodorization modifications at eight existing Mainline Facilities in South Carolina, Georgia, and Louisiana, and modifications at 13 existing Mainline Valve (MLV) Sites in South Carolina and Georgia.

As proposed, the Manassas Loop and associated facilities will be co-located with or adjacent to the existing Transco Mainline for the entirety of the route. Project activities at Station 165 will include an approximately 20-acre area adjacent to the existing Transco facility. All other Project activities will occur within existing facility boundaries.

Transco submitted a request for a Certificate of Public Convenience and Necessity pursuant to Section 7(b) and 7(c) of the Natural Gas Act and Part 157 of the regulations of the Federal Energy Regulatory Commission (FERC) on April 11, 2018 (FERC Docket No. CP18-186-000). This application is under review. Prior to the submittal of the JPA, no other environmental permits have been issued or have been filed.

The Manassas Loop is the only Project component that will cross wetlands or waterbodies. Transco is requesting the JPA serve as a pre-construction notification (PCN) for a U.S. Army Corps of Engineers (USACE) Nationwide Permit (NWP). More specifically, Transco is requesting confirmation of coverage under NWP No. 12 (Utility Line Activities) for the Manassas Loop component of the Project. Other Project components are discussed in the JPA as reference to the overall Project under review by FERC.

Although the portion of the Manassas Loop in Prince William County occurs in "Tidewater Virginia", it does not involve activities in tidal waters, tidal wetlands, or coastal primary sand dunes and beaches. For this reason, the Tidewater JPA was not used.

1 Applicant, Agent, Property Owner, and Contractor Information

The applicant for the Project is Transco and Cardno is functioning as their agent.

<u>Applicant</u>

Joseph Dean
Manager of Permitting
Transco
2800 Post Oak Blvd
Houston, Texas 77056
(713) 215-3427

Or

<u>Agent</u>

Darren Bishop
Project Manager
Cardno
3905 Crescent Park Drive
Riverview, Florida 33578
(727) 424-0435

Or

Chad Burrows
Senior Environmental Specialist
Transco
2800 Post Oak Blvd
Houston, Texas 77056
(713) 215-2738

Jason Sean Lancaster
Senior Consultant
Cardno
6649 Peachtree Industrial Blvd, Suite I
Norcross, Georgia 30092
(404) 862-9819

Transco requests that electronic mail be submitted to the e-mail addresses listed below.

chad.burrows@williams.com
darren.bishop@cardno.com

Transco will be the owner and operator of the Project. They will be the owners of the land where the Project will be constructed and operated or obtain easement rights from property owners.

A contractor has not be selected at this time.

2 Project Location Information

The official name of the Project is the Southeastern Trail Project. Transco is a commercial operation and therefore the Project type is Multi-user.

The Project component under evaluation as part of the JPA is the Manassas Loop. A general location map of the proposed facilities is provided as Attachment A.

2.1 Manassas Loop

The proposed Manassas Loop is 7.72 miles of new 42-inch outside diameter (OD) pipeline in Fauquier and Prince William Counties, Virginia. The Manassas Loop will be co-located with or adjacent to the existing Transco Mainline from milepost (MP) 1568.13 to MP 1575.85 between Station 180 and Station 185. Additional aboveground facilities will be constructed at each terminus of the Manassas Loop, generally co-located with existing facilities. Latitude and Longitude Coordinates for the Manassas Loop are provided below.

Manassas Loop Coordinates	Latitude	Longitude
Beginning	38.628157° N	77.669103° W
Fauquier County and Prince William County Line	38.688733° N	77.621128° W
End	38.721291° N	77.591202° W

The beginning of the Manassas Loop is located 0.10 mile east of the intersection of Old Calverton Road / State Road 642 and Bristersburg Road / State Road 616. The end of the Manassas Loop is located along Reid Lane, approximately one mile north of the intersection of Reid Lane and Fitzwater Drive / County Road 652.

The total proposed area of disturbance for the Manassas Loop is 137.09 acres.

The Manassas Loop is included in the 1978 Catlett, Virginia and 2016 Nokesville, Virginia, United States Geological Survey (USGS) 7.5-minute Quadrangle Maps.

Named streams crossed by the Manassas Loop include Cedar Run, Kettle Run, Owl Run, South Run, and Walnut Branch. All waterbodies crossed by the Manassas Loop are in the Middle Potomac-

Anacostia-Occoquan Watershed (8-digit Hydrologic Unit Code [HUC] 02070010), which has a drainage area of 3,374.01 square miles or 833,734.97 acres. At the 10-digit HUC level, the Manassas Loop is located in Broad Run (0207001005) and Cedar Run (0207001006). At the 12-digit HUC level, the Manassas Loop is located in Kettle Run (020700100503), Walnut Branch-Cedar Run (020700100604), and Owl Run-Cedar Run (0207000100602).

All waterbodies crossed by the Manassas Loop are considered warm waters and Tier-1. No special standards are known to apply to the Project. According to the Draft 2016 305(b)/303(d) Water Quality Assessment Integrated Report, Owl Run, Cedar Run, South Run, and Kettle Run are classified as impaired. Owl Run, Cedar Run, South Run, and Kettle Run are all listed as 4A impaired due to Escherichia coli with sources listed as grazing in riparian or shoreline zones, manure runoff, waterfowl, and wildlife other than waterfowl. Total Maximum Daily Load (TMDL) development for Owl Run is scheduled by 2026. TMDLs for various reaches of Cedar Run were developed in 2004. TMDLs are scheduled for development in 2024 for South Run and 2026 for Kettle Run. Pipeline construction is not considered to be a source of Escherichia coli or contributing factor to further degradation of these waterbodies.

One new access road (AR-FQ-003) will be constructed to provide access to the Manassas Loop during construction and will be restored to pre-construction condition or better following construction, as requested by the landowner(s). Transco will use existing public and private roads to access the construction work area for the Manassas Loop. These existing access roads may require modifications or improvements to safely support the anticipated loads and size of equipment and material movement. No road widening is planned as a part of the Project. Project personnel will use existing parking or approved Contractor Yards/Staging Areas and access roads for vehicle parking. Vehicles and equipment will not be permitted outside of the approved construction boundaries. After construction of the Project is completed, access roads will be restored to pre-construction condition or better, as requested by the landowner(s).

One new permanent access road (AR-FQ-010) will be constructed to provide access to MLV No. 180-22. AR-FQ-010 and the existing AR-FQ-001 and AR-FQ-007 will be used for permanent access to the MLVs and the Permanent ROW during operations. No other new roads will be constructed to access the Manassas Loop for operations.

3 Description of the Project, Project Primary and Secondary Purposes, Project Need, Intended Use(s) and Alternatives Considered.

This JPA is not being submitted at the direction of any state, local, or federal agency. No proposed work has commence and no portion of the Project for which Transco is seeking a permit has been completed. Transco is not aware of any unresolved violations of environmental law or litigation involving the properties.

Pending receipt of all necessary authorizations and permits, construction activities for Project facilities are targeted to begin by August 2019 and end by the in-service date of November 1, 2020. Transco anticipates mobilization and construction to begin for the Manassas Loop by February 2020 and end by the in-service date of November 1, 2020.

3.1 Description of Project

3.1.1 Location and Description of Facilities

Transco is proposing to provide 296.375 thousand dekatherms per day (Mdt/d) of additional firm transportation capacity from the Pleasant Valley Interconnect facility (Dominion Energy Cove Point

Pipeline) in Fairfax County, Virginia to the existing Station 65 pooling point located in St. Helena Parish, Louisiana. The project is referred to as the Southeastern Trail Project (Project). As detailed below, the Project will consist of 7.72 miles of new natural gas pipeline (Manassas Loop) located along the existing Transco Mainline, compressor station horsepower additions at three existing facilities in Virginia (Station 185, Station 175, and Station 165), reversal and / or deodorization modifications at eight existing Mainline Facilities in South Carolina, Georgia, and Louisiana, and modifications at 13 existing Mainline Valve (MLV) Sites in South Carolina and Georgia. Figures depicting the proposed permanent and temporary facilities in Virginia are provided as Attachment B. A description of each of the facilities in Virginia is provided below.

Impacts at Station 185 and Station 175 will be limited in scope and areal extent. All activities/impacts associated with these sites will occur within the existing Transco property or along the Transco Mainline right-of-way (ROW) where environmental features (e.g., wetlands, waterbodies, habitat for federal/state listed species, or cultural resources) are not present. Impacts to wetlands and waterbodies identified at Station 165 will be avoided by maintaining a minimum buffer of 25 feet between the wetland and waterbody boundaries and temporary workspaces associated with the Project.

3.1.1.1 Manassas Loop

3.1.1.1.1 Pipeline

The Manassas Loop consists of the addition of 7.72 miles of new 42-inch OD pipeline. The route will originate at the existing MLV 180-15 site in Fauquier County, Virginia and extend along the existing Transco Mainline to the existing Nokesville Meter Station in Prince William County, Virginia. The pipeline is proposed to be co-located or adjacent with the existing Transco Mainline ROW for the entirety of the route except for a 0.3-mile pullout to avoid paralleling a waterbody (SFQ14, Unnamed Tributary to Walnut Branch).

The Manassas Loop will be located at a 25-foot offset from the existing Transco Mainline C pipeline for the majority of the route. The Temporary Construction ROW for the Manassas Loop will overlap with the Transco Mainline ROW (typically by 40 feet) during construction. The Permanent ROW for the Manassas Loop will include 25-feet of the existing Transco Mainline ROW and 25-feet of new Permanent ROW over the length of the pipeline to facilitate operation and maintenance.

3.1.1.1.2 Mainline Valves

Transco will expand two existing MLV sites and will install one new MLV site along the Manassas Loop as part of the Project. Transco is planning to use remotely operated MLVs (controlled primarily from the Transco Pipeline Control Houston facility in Houston, Texas) that have manual operation capabilities. The use of remotely operated MLVs with the option to use manual operation will enable Transco to meet required response times for each MLV.

MLV No.	MP	County	State	Project Activities	Access
180-15	1568.1	Fauquier	Virginia	Expand existing site to include an additional MLV.	AR-FQ-001 (existing Access Road)
180-20	1573.0	Fauquier	Virginia	Expand existing site to include an additional MLV.	AR-FQ-007 (existing Access Road)
180-22	1575.9	Prince William	Virginia	Addition of a new MLV	AR-PW-010 (new Access Road)

3.1.1.1.3 Crossover Piping and Pig Traps

Crossover piping and pig traps will be located at the termini of the Manassas Loop to facilitate in-line inspections as part of the Transco pipeline integrity program. The crossover piping and pig traps will be located within the MLV 180-15 site and the MLV 180-22 site.

3.1.1.1.4 Permanent Access Roads

One new permanent access road (AR-FQ-010) will be constructed to provide access to MLV No. 180-22. AR-FQ-010 and the existing AR-FQ-001 and AR-FQ-007 will be used for permanent access to the MLVs and the Permanent ROW during operations. No other new roads will be constructed to access the Manassas Loop for operations.

The access roads proposed to be used for the Project are summarized in **Table 1-3** (Attachment C). The access road widths presented in **Table 1-3** are conservative estimates for purposes of calculating impacts.

3.1.1.1.5 Temporary Facilities

Temporary impacts associated with construction of the Project include Temporary Construction ROW, Additional Temporary Workspace (ATWS), Ancillary Areas, and Construction Access Roads and Parking Areas.

Temporary Construction ROW

Transco proposes to use a nominal 110-foot-wide Temporary Construction ROW for the Manassas Loop. This Temporary Construction ROW includes workspace contiguous to the Permanent ROW that is necessary to accommodate large equipment, pipe stringing and setup, welding, trenching, temporary storage of topsoil and trench spoil, and a travel lane. The equipment required for construction of the pipeline includes large trenchers, trackhoes, sidebooms, trucks, and other equipment.

Additional Temporary Work Space

ATWS includes additional workspace beyond the Permanent ROW and Temporary Construction ROW that is typically related to special construction techniques, such as road bores and wetland and waterbody crossings, equipment staging along the Temporary Construction ROW, construction consumables storage (e.g., matting), fenceline crossings, side slope areas, and at locations where additional volumes of spoil will be generated.

Ancillary Areas

Contractor Yards / Staging Areas will be needed for construction and contractor management offices, equipment and vehicle staging, and storage of pipe and other materials. The required condition of the sites at the lease termination will be negotiated between Transco and the landowners and in accordance with the Transco Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) provided in Attachment D and the Transco Wetland and Waterbody Construction and Mitigation Procedures (Procedures) provided in Attachment E.

Transco is currently identifying suitable locations for Contractor Yards / Staging Areas and will coordinate lease agreements with the respective landowners. Transco does not anticipate disturbance of environmental features (e.g., wetlands, waterbodies, habitat for federal/state listed species, or cultural resources) at the Contractor Yards / Staging Areas.

Construction Access Roads and Parking Areas

One new access road (AR-FQ-003) will be constructed to provide access to the Manassas Loop during construction and will be restored to pre-construction condition or better following construction, as requested by the landowner(s). Transco will use existing public and private roads to access the

construction work area for the Manassas Loop. These existing access roads may require modifications or improvements to safely support the anticipated loads and size of equipment and material movement. No road widening is planned as a part of the Project. Project personnel will use existing parking or approved Contractor Yards/Staging Areas and access roads for vehicle parking. Vehicles and equipment will not be permitted outside of the approved construction boundaries. After construction of the Project is completed, access roads will be restored to pre-construction condition or better, as requested by the landowner(s).

The access roads proposed to be used for the Project are summarized in **Table 1-3** (Attachment C). The access road widths presented in **Table 1-3** are conservative estimates for purposes of calculating impacts.

3.1.2 Construction Methods

The Project facilities will be designed, constructed, operated, and maintained in accordance with the U.S. Department of Transportation (USDOT) Minimum Federal Safety Standards contained in Title 49 Code of Federal Regulations (CFR) 192 and the Natural Gas Pipeline Safety Act of 1968, as incorporated by reference, and other applicable federal, state, and local regulations. Project-related environmental compliance, construction, and operation and maintenance procedures are described in the following sections.

3.1.2.1 Environmental Compliance

Transco will implement an environmental compliance program for the Project. The construction contractor and the Transco construction inspection, environmental inspection, and oversight personnel will receive copies of applicable environmental permits, plans, and procedures, as well as relevant environmental conditions identified in landowner agreements. The construction contractor will also be provided with detailed and specific environmental procedures and drawings to ensure compliance with conditions that may be included in the FERC Certificate, Project permits, applicant-proposed best management practices (BMPs), applicant- and agency-proposed mitigation measures, and applicable notification requirements.

Transco proposes to implement a third-party compliance monitoring program on the Project that would be under the direction of FERC staff.

Transco intends to adopt the May 2013 version of the FERC Plan and FERC Procedures with modifications. The Transco Plan and Transco Procedures are provided in Attachment D and Attachment E, respectively. Proposed modifications and justifications for the modifications to the FERC Plan and FERC Procedures are provided with the Transco Plan and Transco Procedures.

General construction procedures and specialized construction procedures are described in the following sections.

3.1.2.2 Environmental Training

Transco is committed to designing, safely constructing, and operating the Project in a manner that has the least practicable adverse impact on human health and the environment. Transco will ensure that environmental requirements are incorporated in construction documents, will conduct environmental training, and will employ dedicated environmental inspectors (EIs) who will monitor Project activities during construction, cleanup, and restoration.

Transco will include Project-specific environmental requirements as part of the construction contract documents. These documents will include applicable permits, FERC certificate conditions, and other relevant environmental conditions. Transco will communicate to its contractor(s) the environmental requirements for the Project. If a contractor is found to be in violation of an environmental requirement, Transco will require an immediate correction of the problem, issue a stop work order if necessary, and resolve disciplinary issues with the contractor.

Before construction begins, Transco will conduct environmental training for the EIs to familiarize them with the specific conditions and issues associated with the Project. Separate training of contractor personnel will also be undertaken to familiarize personnel with the environmental requirements of the Project. Transco will conduct training for new personnel as they are assigned to the Project.

The EIs will have the authority at all times to assess and evaluate construction-related activities to confirm compliance with the environmental conditions of local, state, and federal agency permits or certificates. Transco will be responsible for the selection, employment, training, and guidance of EIs. The duties of the EIs are to monitor and report on those activities designated as environmental scope of work in the construction contracts, such as erosion control, revegetation, construction signage, environmental permit compliance, threatened and endangered species protection, and fencing of sensitive sites. The role of the EI is not to inspect the physical construction of the facilities (welding, lowering-in, and pressure testing), but to provide guidance to other inspectors monitoring these activities related to the conditions of environmental permits or certificates.

The EIs will attend daily meetings of the Construction Management Team and report, as appropriate, to the Chief Construction Inspector and Construction Manager at the daily meetings on environmental-related activities of the construction contractor(s). Transco personnel will maintain contact with the EIs at the appropriate levels throughout construction of the Project.

The EIs will be present onsite on a daily basis during construction of the Project. The objective is to maintain construction progress within the guidelines established by Transco and the regulatory agencies. The EIs will work with the construction foreman/crew to provide interpretation and enforcement of local, state, and federal environmental regulations. If an agreement on an interpretation of an environmental condition cannot be reached among the EIs and construction personnel, the issue will be raised to the Transco Project Manager as necessary. The field crews will then implement the interpretation and final resolution.

The Transco Project Manager will review daily reports generated by the EIs. The EIs will also complete field reports for agency notification. The Transco Project Manager will review agency notifications. Agency notifications required by permit conditions will be made by the Transco Project Manager.

The EIs will oversee and document environmental compliance and prepare FERC weekly/biweekly reports throughout construction. Project-related construction personnel will be informed of the EIs' authority and will receive job-appropriate training prior to beginning work on the Project.

3.1.2.3 Pipeline Loop Construction Procedures

Construction activities associated with the Manassas Loop will begin with the marking or staking of the construction boundaries, followed by clearing, erosion control device installation, fencing, grading, excavation, facility installation, cleanup, and restoration. Typical pipeline construction sequence and typical construction ROW configuration drawings are provided as Attachment F.

3.1.2.3.1 Construction Boundary Marking

Land survey crews will mark the limits of disturbance by flags and/or stakes and will include ATWS areas to demarcate the approved work areas. Avoidance areas, such as wetland boundaries, cultural resource sites, and sensitive species habitat that are to be avoided will be marked with appropriate fencing or flagging based on environmental and cultural resources surveys.

3.1.2.3.2 Clearing, Grading, and Fencing

The construction work area will be cleared and graded to remove brush, trees, roots, and other obstructions, such as large rocks and stumps. Crops and other non-woody vegetation may be mowed while other crops may be left in place to limit soil erosion. The construction work area will be graded as necessary to create a safe working area, accommodate working construction equipment, and allow the

operation and travel of construction equipment. The natural drainage will be preserved to the extent practicable. A fence crew, typically operating in conjunction with the clearing crews, will cut and brace fences along the route where necessary. Temporary gates will be installed to control livestock and limit public access where necessary. The crew will also fence off the avoidance areas with temporary construction fence.

Timber will be removed only when necessary for construction purposes. Merchantable timber may be limbed, cut, and removed from the ROW. Timber that is not merchantable and other vegetative debris may be chipped, burned, or disposed of according to applicable regulations. The preferred method of handling woody debris and other cut vegetation (slash) on the ROW during pipeline construction and ROW clean-up, reclamation, and maintenance, is to stockpile and redistribute the material on the ROW. Burning, if used, will be conducted in accordance with state and local burn permits and regulations and performed in a manner to minimize fire hazard and prevent heat damage to surrounding vegetation. At this time, locations, times, and amounts of prescribed open burning are unknown. Stumps may be buried in non-tilled land on the construction work area and with the agreement of the appropriate landowner. Stumps and other timber considered non merchantable may be used to construct off-road vehicle barriers at the request of appropriate landowners. Disposal of materials taken offsite will be performed at commercial facilities or at other approved locations.

Grading may be necessary after the ROW has been cleared. Minimal grading will be required in flat terrain. A maximum of 12 inches of topsoil typically will be removed or stripped, and segregated in agricultural lands that are annually cultivated or have crops rotated. Areas outside of agricultural areas may be stripped at the request of a land management agency or landowner(s). If the topsoil is less than 12 inches in depth, the actual depth of the topsoil will be removed and segregated. The actual depth, if less than 12 inches, will be determined during construction. The contractor will strip these areas to a depth where the topsoil and lower horizon of soil are visible in equal amounts as determined by soil color and texture. Typically, soil will be stripped from the ditch, stored in an upland area of the construction work area. Up to 12 inches of topsoil may be removed and segregated unless topsoil replacement is determined to be more efficient by the contractor or when requested by landowners in residential areas.

3.1.2.3.3 Trenching

Backhoes, rippers, or similar equipment will be used to excavate the trench for the Manassas Loop pipeline. Transco will meet or exceed USDOT requirements for the depth of trench. One-call systems for Virginia will be contacted to have buried utilities identified and flagged before construction begins. Trenching near utilities will begin only after completing the appropriate procedures.

Transco will employ BMPs described in the Transco Plan (Attachment D) and the Transco Procedures (Attachment E) to minimize erosion during trenching operations and construction activities. Transco will also develop a Project-specific Erosion and Sediment Control Plan to comply with Virginia Department of Environmental Quality (VDEQ) regulations. Measures will also be taken to minimize free flow of water into the trench and through the trench into waterbodies. Construction through waterbodies will be scheduled so that the trench is cut just prior to pipe-laying activities. Trenching across waterbodies will be performed in accordance with applicable federal and state requirements.

Drain tiles and irrigation systems will be restored to landowner specifications after pipeline installation so as not to impact future agricultural operations. In addition, the pipeline will be constructed to not interfere with the construction of other utilities. Existing permanent survey and reference monuments within the ROW will be protected during construction.

3.1.2.3.4 Pipe Laying

Prior to pipeline construction, pipe will be moved into the Project area by rail or truck and placed in pipe storage yards or delivered directly onto the ROW. The pipe laying or stringing operation will involve transporting pipe sections (joints) from the pipe storage yards into position along the cleared and graded

ROW. Trucks or other vehicles will travel along the ROW and lay or string the individual joints parallel to the centerline of the trench so the joints are accessible to construction personnel. The joints are typically strung on the working side of the trench for bending, welding, coating, and lowering-in operations and associated inspection activities.

3.1.2.3.5 Bending, Welding, Coating and Lowering-In

Pipe typically will be delivered to the construction work area in straight sections where it is bent to conform to changes required for pipeline alignment and to natural ground contours. Bending of the sections will be performed by track-mounted hydraulic pipe-bending machines.

After the pipe has been bent where necessary, it will be aligned and welded. Typically, the joints will be welded together with assistance of external line-up clamps or internal traveling line-up clamps. As each weld is completed, the pipe will be placed on supports adjacent to the trench. Each weld will be inspected visually and radiographically (or by another nondestructive testing method) by qualified inspectors. Bending, welding, and coating in the field will comply with USDOT regulations at 49 CFR 192 and will also comply with the latest edition of American Petroleum Institute Standard 1104.

Pipe will be protected with an external coating designed to protect the pipe from corrosion. Except for a small area at the end of the pipe joint, this coating is applied at the pipe mill before shipment to the site. After welding together in the field, pipe joints will be coated with similar or compatible materials. The pipe coating will be inspected for defects, referred to as holidays, with special attention provided to field-applied coatings before lowering the pipe into the trench. Holidays will be repaired prior to lowering-in in accordance with construction specifications.

In some locations, it may be necessary to provide negative buoyancy to the pipe by means of set on concrete weights, concrete coating, pipe sacks, and/or soil anchors. Set-on weights and concrete coating may be fabricated in the Project area or purchased offsite and installed in the Project area. No concrete coating fabrication will take place within 100 feet of waterbodies or wetlands.

Side boom tractors will be used to lower the pipe into the trench. The ditch will be free of debris and foreign material. If the bottom of the trench is rocky, the pipe may be lowered onto sandbags or support pillows. Alternative sources of padding for pipe in rocky soil may be sand, gravel, or screened soil, excluding topsoil. In areas where the excavated trench material may damage the pipe, the pipe will be protected with a wrap of rock shield. The pipe will be placed in the ditch so as to conform to the alignment of the ditch and to not damage the coating. Trench dewatering may be required in certain locations to prevent the pipe from floating and to perform certain limited activities in the trench. Trench dewatering will be performed in accordance with the BMPs described in the Transco Procedures (Attachment E).

3.1.2.3.6 Backfilling

The trench will be backfilled using a bulldozer, backhoe, auger-type backfilling machine, mormon board, or other suitable equipment after lowering the pipe into the trench. Backfill typically consists of the material originally excavated from the trench. However, additional backfill from other sources may be required in some cases. Excess excavated materials or materials unsuitable for backfill will be spread evenly over the ROW or disposed of in accordance with applicable regulations. In areas where topsoil has been segregated, the subsoil will be placed in the trench first and then the topsoil will be placed over the subsoil. Backfilling will occur to grade or higher to accommodate future soil settlement. Tilling of the subsoil and topsoil will be performed at the request of the landowner.

Attention will be provided to minimize erosion potential by restoring the natural contour of the ground and surface drainage patterns as similar to preconstruction conditions as practicable during backfilling. Sandbags or foam-type trench breakers will be placed across the trench prior to backfilling to minimize the possibility of subsurface water flow in the trench on slopes along the pipeline. The trench backfill will be solidly compacted in other areas such as terrace, levee, and waterbody crossings and the banks at

waterbody and ditch crossings. Trench plugs may be used to minimize the flow of water from a waterbody or wetland to and from the trench when the trench crosses waterbodies or wetlands.

3.1.2.3.7 Testing

The pipeline will be tested hydrostatically in accordance with 49 CFR 192 to verify pipeline integrity and ability to withstand designed maximum operating pressures. The pipeline will be cleaned using a cleaning pig prior to hydrostatic testing. After the testing is completed, the line will be depressurized and the water discharged using displacement pigs.

Test water intake and discharge will be in accordance with applicable state water regulations and federal and state discharge requirements. Test water will be withdrawn from approved sources. The water intake will be screened to prevent entrainment of aquatic life where surface water sources are used. After hydrostatic testing is complete, the test water will be discharged into well-vegetated upland areas utilizing energy dissipation devices such as hay bales to minimize erosion and sedimentation. No chemicals will be added to the hydrostatic test water and no chemicals be used to dry the pipeline after testing.

Testing will be conducted in segments and will be dependent on parameters such as surface topography, class locations, and available water sources. At this time, Transco proposes the use of municipal water sources for all hydrostatic testing.

3.1.2.3.8 Clean-up and Restoration

After the completion of construction, disturbed areas will be finish-graded and remaining trash and debris will be properly disposed of in compliance with federal, state, and local regulations. Areas disturbed by Project activities will be protected from erosion by implementing erosion control measures, including site-specific contouring, mulch and reseeding, or sodding with soil-holding grasses. The erosion control measures will be implemented as described in the Transco Plan (Attachment D) and the Transco Procedures (Attachment E). Transco will also develop a Project-specific Erosion and Sediment Control Plan to comply with VDEQ regulations.

3.1.2.3.9 Traffic

The impact on traffic and transportation facilities and public inconvenience at road crossings will be minimized to the extent practicable. Appropriate safety procedures will be implemented to protect workers and the public. Traffic warning signs and other traffic control devices will be used as required by federal, state, and local DOT and other regulating bodies.

3.1.2.4 Special Pipeline Construction Procedures

Construction across or near certain resources and features will involve special construction techniques as described in the following sections.

3.1.2.4.1 Road and Railroad Crossings

Construction of the Manassas Loop across paved and unpaved roads where traffic cannot be detoured or interrupted will be accomplished by boring under the roadbed or by open-cut methods. Existing railroads will be crossed by boring under the railroad. The boring method involves excavation of a bore pit on one side of the crossing and a receiving pit on the other side. A boring machine will then cut a shaft under the crossing using a cutting head mounted on an auger. The pipeline will then be pushed or pulled through the hole. The open-cut method for roads involves trenching across the road and then restoring the road to pre-construction conditions following construction. If an open-cut road requires an extensive construction duration, provisions will be made for detours or other measures to permit traffic flow during construction. If necessary, traffic control measures will be coordinated with the appropriate state or local agency with jurisdiction over the affected road.

The pipeline will be installed at a minimum depth of 5 feet below the center of the road and a minimum of 10 feet below the railroad or as required by applicable crossing permits and approvals, and will be designed to withstand anticipated external loadings. ATWS areas will be required at road and railroad crossings to accommodate the extra spoil generated from the entrance and exit pits at bored crossings or from the increased excavation depths at open-cut road crossings, as well as for staging of pipe and vehicle parking. Where the construction ROW is accessible from a paved roadway, construction entrances will be installed to minimize tracking of dirt and mud onto the roadway.

Road and railroad crossings and proposed crossing methods are identified by MP in **Table 1-5** (Attachment G) and **Table 1-6** (Attachment H) respectively. A typical construction drawing for a road and railroad bore crossings is provided in Attachment F.

3.1.2.4.2 Underground Utility Line Crossings

The Manassas Loop pipeline will be installed at an appropriate depth (either over or under the existing utility) where existing underground utilities are crossed to meet soil cover and separation requirements in accordance with USDOT regulations and specifications. At least 24 inches of separation between the pipeline and the existing utility line will be maintained where feasible. ATWS areas may be required at underground utility crossings to accommodate the increased excavation depths and minimize the need to operate equipment or store spoil over existing pipelines.

Major utility line crossings are identified by MP in **Table 1-7** (Attachment I).

3.1.2.4.3 Wetlands

Construction techniques within wetlands will be consistent with the Transco Procedures (Attachment E) and federal and state permits. Transco will obtain appropriate permits associated with crossing jurisdictional wetlands. If Transco is required to modify wetland crossing techniques during the permitting process, this updated information will be filed with FERC. Transco will install appropriate BMPs, as identified in the Transco Procedures to minimize the potential for impacts to wetlands.

The methods of pipeline construction and the required construction work area width in wetlands will depend upon the soil stability and the existing use and condition of the wetland. The Transco Procedures provide additional detail regarding construction activities within saturated wetlands (Attachment E). Where soils are unstable and saturated, stable temporary work surfaces within the wetlands may be constructed. Timber mats or gravel on geotextile fabric are possible methods of stabilization. Typically, ATWS areas are located a minimum of 50 feet from the edge of wetlands. If a riparian wetland is located adjacent to a waterbody, an ATWS may be requested and placed in the wetland. Vegetation will be cut to ground level within wetlands. Grading and stump removal will be performed only over the trench, except where safety conditions require additional removal on the working side of the ROW.

The construction procedures used to cross unsaturated wetlands will be similar to those used in dry land areas. Topsoil will be segregated in unsaturated wetlands in the same manner as previously described for agricultural lands. Trench plugs will remain in the trench prior to entering a wetland if the trench contains water. The trench plugs are designed to minimize sediment discharges into the wetland from the upland areas up-gradient and down-gradient of the wetland. Points at which the trench enters and exits the wetland will be sealed with trench breakers to maintain the hydrologic integrity of the wetland, where determined to be necessary by an EI. BMPs will be identified in the Project-specific Erosion and Sediment Control Plan to comply with Transco Wetland and Waterbody Construction and Mitigation Procedures regulations. Backfill will be well compacted, especially near the edges of the wetlands. Excess backfill will be spread over adjacent upland areas and stabilized during cleanup. After completion of construction, topographic conditions and contours in wetlands will be restored as similar as practicable to the original topographic conditions and contours. Typical wetland crossing drawings are provided in Attachment F.

Wetland impacts from construction will be short-term and localized due to the nature of the Project (such as a linear underground facility). There will be no permanent fill in wetlands associated with the Project. Mitigation for permanent conversion of wetland vegetation cover will be determined through consultation with the USACE. Construction techniques will be used to minimize workspace requirements, preserve the seed bank (topsoil segregation), and promote germination (restore grades and avoid compaction) to facilitate recovery following construction.

3.1.2.4.4 Waterbodies

Construction techniques within waterbodies will be consistent with the Transco Procedures (Attachment E) and federal and state permits. Transco also will utilize appropriate BMPs that will be identified in the Project-specific Erosion and Sediment Control Plan to comply with VDEQ regulations to minimize the potential for impacts to waterbodies.

Transco will generally require a typical 110-foot-wide construction ROW through waterbodies (where feasible) to allow for the installation of equipment crossings. Transco proposes to cross waterbodies that have perceivable flow at the time of crossing using the dam and pump method (described in detail below). Upland construction techniques will be used to cross waterbodies when there is no perceivable flow at the time of crossing. Equipment to perform a dam and pump crossing will be onsite as a contingency should perceptible flow in waterbodies begin during construction.

Waterbody crossings will be perpendicular to the flow where practicable. Grading at approaches to waterbodies may be required to create a safe work surface and to allow the necessary area for pipe bending. If grading is required, it will be directed away from the waterbody to reduce the possibility of disturbed soils being transported into the waterbody by wind or water erosion.

Temporary equipment crossings (bridges) will be placed across waterbodies to allow for construction equipment to cross the waterbodies with minimal impact during construction. Equipment crossings may consist of prefabricated construction mats, rail flat cars, flexi-float or other temporary bridges (Bailey bridges), or flume installations. Flume installations include suitably sized flumes and a travel surface consisting of rock fill, sandbags, timber mats, or timber riprap. At equipment bridge locations, care will be taken to minimize disturbance of the waterbody bank and bottom. Equipment crossings are typically installed during the clearing and grading phases.

At waterbody crossings where rock is not encountered, Transco will place the pipeline deep enough to avoid the potential for scour to expose or uncover the pipe or a minimum of 5 feet below the bottom of the waterbody channel. Where practicable, material excavated from the trench will be stockpiled in upland areas and generally used as backfill unless federal or state permits specify differently. Containment structures for removed material typically will include approved sediment barriers, compost filter socks, silt fences, or straw bales, and will serve to minimize the potential for soil to enter the waterbody.

The ROW will be prepared on either side of the waterbody prior to the construction of the actual crossing to limit the time required for construction of a waterbody crossing. Trees will be preserved to the extent practicable when crossing through forested waterbody banks. The waterbody channel will be returned to its original contour to the extent practicable following construction.

If Transco is required to change waterbody crossing techniques during the federal and state permitting process, updated information will be filed with FERC.

Dam and Pump Crossing Method

The dam and pump method for waterbody crossings involves installation of temporary dams upstream and downstream of the proposed waterbody crossing location. The temporary dams typically will be constructed using sandbags and plastic sheeting. Following dam installation, appropriately sized pumps will be used to dewater the upstream impoundment and transport the waterbody flow around the construction work area and trench to the downstream side of the construction work area. Intake screens

will be installed at the pump inlets to prevent entrainment of aquatic life, and energy dissipating devices will be installed at the pump discharge point to minimize erosion and waterbody scour. Trench excavation and pipeline installation will then commence through the dewatered portion of the waterbody channel. Following completion of pipeline installation, backfill of the trench, and restoration of waterbody banks, the temporary dams will be removed, and flow through the construction work area will be restored. This method is appropriate for those waterbody crossings where pumps can adequately transfer the waterbody flow volume around the work area and there are no concerns about the temporary passage of sensitive species. A typical dam and pump waterbody crossing drawing is provided in Attachment F.

3.1.2.4.5 Agricultural Areas

Prior to construction, Transco will consult with landowners to locate existing drainage tiles. If drainage tiles are exposed or damaged during construction activities, appropriate measures to repair or replace the drainage tiles will be implemented after coordination with the landowner and in accordance with applicable regulatory guidelines. A maximum of 12 inches of topsoil typically will be removed or stripped and segregated in agricultural lands that are annually cultivated or have crops rotated. Construction methods for agricultural lands will follow the Transco Plan (Attachment D). Typical ROW configuration drawings that include topsoiling areas along the Manassas Loop are provided in Attachment F. Transco anticipates there will be no permanent impacts to croplands as a result of Project activities.

3.1.2.4.6 Rugged Terrain/Steep Slopes

The upslope side of the construction work area will be cut during grading where severe side-slopes are encountered along the Project route. The excavated material will be used to fill the downslope edge of the construction work area to provide a safe and level surface from which to operate heavy equipment. Side-hills may require ATWS areas to accommodate the storage of excess fill material. During restoration, the spoil will be placed back into the cut and restored to as near as original contours as practicable. Springs or seeps found in the cut would be carried downslope using restoration techniques such as the installation of drainpipes and/or gravel drains. The final determination of the most appropriate method to ensure downhill flow of groundwater seeps or springs in side-hill situations would be made in the field during construction by the contractor in coordination with an EI.

3.1.2.4.7 Blasting

Shallow bedrock that cannot be excavated using mechanical means may be encountered during Project construction; blasting would be required for ditch excavation in these areas. During blasting, measures would be implemented to prevent damage to nearby underground structures (cables, conduits, and pipelines) or water wells in accordance with applicable regulations. Blasting mats or soil cover would be used as necessary to prevent the scattering of loose rock. Blasting would be conducted during daylight hours and would not begin until nearby residences, ranchers, businesses, and/or other occupants have been notified.

A Project-specific Blasting Plan developed in accordance with industry accepted standards, applicable regulations, and permit requirements is provided in Attachment J.

3.1.2.4.8 Co-location with Existing Corridors

The Manassas Loop is proposed to be co-located or adjacent with the existing Transco Mainline ROW for the entirety of the route except for a 0.3-mile pull-out to avoid paralleling a waterbody (SFQ14, Unnamed Tributary to Walnut Branch). The Manassas Loop will be located at a 25-foot offset from the existing Transco Mainline C pipeline for the majority of the route. The Temporary Construction ROW for the Manassas Loop will overlap with the Transco Mainline ROW (typically by 40 feet) during construction. The Permanent ROW for the Manassas Loop will include 25-feet of the existing Transco Mainline ROW and 25-feet of new Permanent ROW over the length of the pipeline to facilitate operation and maintenance.

Locations and extent of Project work areas that will overlap existing ROWs are depicted on the Project Aerial Alignment Sheets provided in Attachment K. The beginning and end MPs for co-location of the Manassas Loop are provided in **Table 1-8** (Attachment L).

3.2 Project Primary and Secondary Purposes, Project Need, Intended Uses(s)

The Project will provide up to 296.375 Mdt/d of additional firm transportation capacity path from the existing bidirectional Zone 5 Pleasant Valley Interconnect between Transco and the Dominion Energy Cove Point Pipeline in Fairfax County, Virginia to the existing Zone 3 pooling point at Station 65 in St. Helena Parish, Louisiana.

Transco held an Open Season for the Project from June 27, 2017 to August 3, 2017, and has executed long-term binding precedent agreements with five end use natural gas shippers for 100 percent of the firm transportation capacity as detailed below.

Customer	Transportation Contract Quantity (Mdt/d)
Public Service North Carolina	60.000
South Carolina Electric and Gas	215.000
Virginia Natural Gas	14.625
City of Buford, Georgia	3.750
City of LaGrange, Georgia	3.000
Total	**296.375**

In meeting this contracted demand for natural gas, the Project will address existing and immediate long-term supply needs for the 2020/2021 heating season and beyond while providing access to new sources of domestic natural gas supply and will support the overall reliability of the energy infrastructure in the U.S. The Project is designed to provide customers with the ability to:

- Assist with managing portfolio cost for end users
- Provide commodity price stability for end users
- Improve our customers' system reliability
- Support economic development in the local end user communities

The Project is fully contracted for a primary term ranging from 15 to 35 years depending on the shipper and is consistent with the FERC Statement of Policy on the Certification of New Interstate Natural Gas Pipeline Facilities, as more fully discussed in the text of the Application (in particular, see the Public Convenience and Necessity section of the Application).

3.3 Alternatives Considered

3.3.1 Proposed Action

The Project will include installation of new pipeline loop in Virginia, compressor station HP additions at three existing facilities in Virginia, reversal and / or deodorization modifications at eight existing facilities in South Carolina, Georgia, and Louisiana, and modifications at 13 existing MLV Sites in South Carolina and Georgia.

3.3.2 No-Action Alternative

Under the No-Action Alternative, Transco would not expand its system capacity with construction of the Project to serve growing natural gas markets. The Project would not deliver 296.375 Mdt/d of new gas supply to serve the customers identified in Section 3.2 above.

Although selection of the No-Action Alternative would avoid potential environmental and other impacts, the beneficial impacts of implementing the Project (such as assisting with managing portfolio cost for end users; providing commodity price stability for end users; improving customer system reliability; supporting economic development in the local end user communities) would not occur. Selecting the No Action Alternative would not meet the stated Purpose and Need for the Project (see Section 3.2 above); therefore, the No-Action Alternative is not considered a viable option.

3.3.3 System Alternatives

System alternatives are alternatives to the proposed action that would make use of other existing, modified, or proposed pipeline systems and/or existing compression to meet the stated purpose and need of the Project. System alternatives involve the transportation of the equivalent amount of incremental natural gas volumes by the expansion of other existing pipeline systems or by the construction and operation of other new pipeline systems or compressor stations. A viable system alternative would make it unnecessary to construct all or part of the Project, and would involve the transportation of all or a portion of the additional natural gas volumes by expansion of another existing pipeline system or construction of a new pipeline system. Such modifications or additions would likely result in environmental impacts, and such impacts would in all likelihood be similar to, and potentially greater than, those associated with construction of the proposed Project.

Transco is not privy to, nor does Transco have a means to determine the design criteria of other pipeline systems or have access to the operational data necessary to accurately determine the specific facilities or cost for expansions to other pipeline operator's systems. However, sufficient public information is available to conclude that an expansion of any other existing pipeline system cannot meet the Project objective of transporting 296.375 Mdt/d of natural gas from the Pleasant Valley Interconnect facility (Dominion Energy Cove Point Pipeline) in Fairfax County, Virginia to the existing Station 65 pooling point located in St. Helena Parish, Louisiana without incurring environmental impacts that are similar to or greater than those that will be incurred by the Project.

Transco evaluated two system alternatives to meet the stated Purpose and Need of the Project (see Section 3.2 above). The system alternatives evaluated include the Compressor-Intensive Alternative and the Loop-Intensive Alternative.

3.3.3.1 Compressor-Intensive Alternative

Transco evaluated a Compressor-Intensive Alternative to the Project, which would involve the installation of additional compression at the existing Station 185, Station 180, Station 175, and Station 165 without incremental pipeline looping. The Compressor-Intensive Alternative would require the installation/up-rating of compressor units totaling 91,635 ISO HP, or 10,915 ISO HP more than the 80,720 ISO HP required for the Project. The 91,635 ISO HP comprising the Compressor-Intensive Alternative would include the same compression additions at locations where compression is proposed to be added or modified as a part of the Project (Station 185, Station 175, and Station 165). In addition, a 10,915 ISO HP compressor addition would be required at Station 180. The Compressor-Intensive Alternative would result in greater fuel consumption, fuel costs, and air emissions, while overall land disturbance during construction would be less.

Reliability for pipelines is generally greater than compression facilities as compression facilities experience more frequent downtime for planned and unplanned maintenance, whereas pipelines require infrequent outages for repair or maintenance.

In terms of emissions, federal and state regulations for large HP projects require broad evaluation of air impacts, as well as installation of stringent emission controls, thus the Compressor-Intensive Alternative would increase permitting complexity. Moreover, Transco estimates a 5.3 pound per hour (lb/hr) increase in the NOx emission rate based on typical emissions from the addition of 10,915 ISO HP of natural gas-fired compression (e.g., Solar T70) that would be required at Station 180. Annual emissions for the addition of natural gas fired compression at Station 180 would result in the following increases relative to the Project:

- NOx: 23.3 Tons per year (TPY)
- CO: 23.6 TPY
- VOC: 2.7 TPY
- SO_2: 1.4 TPY
- PM/PM2.5: 2.8 TPY
- CO2e: 50,000 TPY

One-time emissions associated with constructing new compression at Station 180 as part of Compressor-Intensive System Alternative are similar to the construction emissions associated with Project; therefore, there is no material benefit for the Compressor-Intensive System Alternative versus the Project related to construction emissions. **Table 10-1** (Attachment M) and **Table 10-2** (Attachment N) provide comparisons of emissions from construction and on-going emissions for the Project and Compression-Intensive System Alternative.

For the above reasons, the Compression-Intensive System Alternative was eliminated from further consideration.

3.3.3.2 Loop-Intensive System Alternative

Transco evaluated a Loop-Intensive Alternative, which would emphasize the use of pipeline loops to be installed along the Transco Mainline to provide the Project capacity. The Loop-Intensive Alternative would require a total of 48.39 miles of new pipeline loop, compared to 7.72 miles required in the Project. The distance between beginning and ending MPs may not reflect the actual length of each proposed loops. The length of each loop is based on the distance between MPs along existing pipelines. Thus, crossover or variations of the pipeline loops would lengthen the mileage when compared to the existing pipelines and MPs. The Loop-Intensive Alternative would include a lengthened Manassas Loop, plus two additional loops, totaling an increase of 40.67 miles of pipeline as listed below:

- 12.21 miles total pipeline length of 42-inch loop from MP 1568.16 to MP 1580.17 in Fauquier and Prince William Counties, Virginia
- 17.75 miles total pipeline length of 42-inch loop from MP 1499.36 to MP 1517.06 in Fluvanna and Louisa Counties, Virginia
- 18.43 miles total pipeline length of 42-inch loop from MP 1412.99 to MP 1431.37 in Pittsylvania and Campbell Counties, Virginia

Table 10-3 (Attachment O) provides a comparison of the constructability and environmental impacts associated with the Project and the Loop-Intensive Alternative. This comparison is based on a typical 110-foot-wide construction corridor for the 42-inch pipeline loops, and does not include impacts for additional temporary workspace, access roads, or Contractor Yards / Staging Areas. The Loop-Intensive Alternative would be marginally greater in reliability compared to the Project due to the greater reliability of the pipeline loops versus compression additions. In addition, the Loop-Intensive Alternative is

estimated to cost approximately 60 percent more than the Project, which would be economically infeasible for the customers.

For the above reasons, the Loop-Intensive System Alternative was eliminated from further consideration.

3.3.4 Manassas Loop Route Alternatives

Route alternatives to the Project were evaluated to determine the preferred Project alignment that meets the stated Purpose and Need of the Project (see Section 3.2 above), while minimizing adverse environmental and socioeconomic impacts. For the purposes of this analysis, route alternatives were categorized as one of the following:

- **Major Route Alternative**: an alignment that deviates from the preferred route for an extended distance (such as several miles) or is several miles away from the preferred route
- **Route Variation**: a route adjustment over a short distance to avoid a specific resource, to provide a safer or more efficient crossing, or to accommodate requests of landowners, land management agencies, and/or resource agencies

3.3.4.1 Manassas Loop Major Route Alternatives

The Manassas Loop was routed to be co-located or adjacent with the existing Transco Mainline ROW for the entirety of the route except for a 0.3 mile pull-out to avoid paralleling a waterbody (SFQ14, Unnamed Tributary to Walnut Branch). Co-location was a principle design consideration for the Manassas Loop to minimize environmental and new landowner impacts.

3.3.4.1.1 Major Route Alternative A

Transco compared the potential impacts and constructability of Major Route Alternative A with the Project route during initial planning phases of the Project.

Major Route Alternative A would originate at the existing MLV 180-20 site in Fauquier County, Virginia and extend along the existing Transco Mainline from MP 1573.0 to approximately MP 1580.1 in Prince William County, Virginia. Major Route Alternative would include three horizontal direction drill (HDD) crossings of Broad Run, which has been designated by the Virginia Department of Game and Inland Fisheries as a Threatened and Endangered Species Water. In addition, the northern 2.14 miles of Major Route Alternative would extend through residential areas. Major Route Alternative A was not incorporated as the Project route because of the required HDD crossings and because the route would impact a greater number of landowners by crossing through the residential areas.

Major Route Alternative A and the current Project route are depicted on **Figure 10-2** in Attachment Q. A general comparison of impacts associated with the current Project route and Major Route Alternative A is provided in **Table 10-4** in Attachment P.

3.3.4.2 Manassas Loop Route Variations

Route variations differ from system alternatives or major route alternatives in that each would reduce impacts on specific localized features, are typically shorter than major route alternatives, do not result in a significant departure from the route orientation, and do not always clearly show an environmental advantage, other than reducing or avoiding impacts on specific features. Transco will continue to consider and evaluate route variations based on additional stakeholder input.

3.3.4.2.1 Route Variation A

Transco has incorporated Route Variation A as part of the current Manassas Loop route to avoid impacts to a waterbody (SFQ14) extending parallel within the Permanent ROW. Route Variation A deviates north from the existing Transco Mainline at MP 1572.4 to avoid the paralleled portion of SFQ14 (Unnamed

Tributary to Walnut Branch) for 0.3 miles before crossing perpendicular to the waterbody and returning to the Transco Mainline at MP 1572.7 Route Variation A is depicted on **Figure 10-3** provided in Attachment Q and a comparison of Route Variation A to the Initial Manassas Loop Route (Planning Phase) is provided in **Table 10-5** (Attachment R).

3.3.5 Conclusions

For the reasons discussed in the preceding sections, Project facilities and site locations are the most appropriate to accomplish the Project Purpose and Need. The total land area impacted by the Project will be minimized by the Manassas Loop being co-located or adjacent with the existing Transco Mainline. This co-location has several inherent engineering, long-term operations and maintenance, and environmental advantages. In addition, station modifications, Mainline Facility Station Reversals and Deodorization Modifications, and Mainline Valve Deodorization Modifications impacts either occur within existing facility boundaries or only within the area needed to safely construct the Project. Construction of the Project as proposed is considered by Transco to be preferable from an environmental and economic standpoint. With implementation of appropriate mitigation measures, the Project location and actions are not anticipated to result in significant environmental impacts.

4 Project Costs

The approximate cost of the entire project, including materials and labor are $360,000,000.

The approximate cost of only the portion of the project affecting state waters (channelward of mean low water in tidal areas and below ordinary high water mark in nontidal areas) is $1,400,000.

5 Public Notification

5.1 Property Owners

Landowners have not been notified with forms provided in Appendix A of the JPA.

Transco will notify all affected landowners pursuant to 18 CFR § 157.6(d) and provide information regarding procedures to follow in the event that a landowner has concerns or problems during construction. The Landowner Complaint Resolution Procedure provided in Attachment S outlines these procedures. The landowner notifications will include:

- The Project filing docket number.
- The most recent edition of the FERC pamphlet An Interstate Natural Gas Facility on My Land? What Do I Need to Know? explaining the FERC certificate process and addressing the basic concerns of landowners.
- A description of the applicant and the Project location, purpose, and schedule.
- A general description of what the applicant will need from the landowner if the Project is approved and how the landowner may contact the applicant.
- A brief summary of what rights the landowner has at the FERC and in proceedings under the eminent domain rules of the relevant state.
- Information on how the landowner can obtain a copy of the application from the company or the location(s) where a copy of the application may be found.

- A copy of the FERC Notice of Application, specifically stating the date by which timely motions to intervene are due, together with the FERC information sheet on how to intervene in FERC proceedings.

Names and addresses of landowners affected by the Project were provided as Privileged Information in Appendix III.A (Volume III - Privileged and Confidential) of the FERC application. If the landowner list is revised, updates will be provided to FERC staff as needed.

5.2 Local Newspapers

The names of newspapers having general circulation in Fauquier, Prince William, and Pittsylvania Counties, Virginia are provided below as required in Section 5 of the JPA.

5.2.1 Fauquier County

Fauquier Times
39 Culpeper Street
Warrenton, Virginia 20186
(540) 347-4222

5.2.2 Prince William County

Prince William/Gainesville Times
39 Culpeper Street
Warrenton, Virginia 20186
(703) 791-9532

5.2.3 Pittsylvania County

Chatham Star Tribune
28 N. Main Street
Chatham, Virginia 24531
(434) 432-2791

6 Threatened and Endangered Species Information

Environmental field surveys for the Project were conducted in January 2018 and February 2018 along the Manassas Loop. Environmental field surveys were not performed at Station 185, Station 175, Mainline Facility Station Reversals and Deodorization Modifications sites, or Mainline Valve Deodorization Modifications sites as Project activities at these sites will occur in previously disturbed areas within the existing facilities.

Transco also consulted with the U.S. Fish and Wildlife Service (USFWS), Virginia Department of Game and Inland Fisheries (VDGIF), and Virginia Department of Conservation and Recreation (VDCR) - Division of Natural Heritage (DNH) regarding wildlife effects and significant habitats in the Project area.

The Field Environmental Report (Attachment T) summarizes the consultations conducted with the agencies to date and summarizes the findings of the January 2018 and February 2018 field surveys. Transco anticipates conducting aquatic surveys for federal and state listed fish and mussels in the second quarter of 2018. Transco also plans to conduct surveys for Harperella (*Ptilimnium nodosum*) in the third quarter of 2018.

Transco will complete a USFWS Virginia Field Office Project Review Package once all species-specific surveys have been completed. It is anticipated that Transco will be able to design the Project in such a manner as to show "no effect" or "may affect, not likely to adversely affect" determinations for all federal

species. Transco do not expect to need a biological opinion (BO) or incidental take authorization for this Project to comply with Section 7 of the Endangered Species Act.

A package will be assembled for the VDGIF similar to that prepared for the USFWS. Transco intends to comply with any applicable time of year restriction(s) or buffer(s) for species positively identified during species-specific surveys.

7 Historic Resources Information

A survey to locate archeological sites and/or historic structures was performed in January 2018 and were completed in March 2018 for the study are of the Manassas Loop. Cultural resources assessment of properties determined by the State Historic Preservation Office (SHPO) to be Potentially Eligible is planned for Spring 2018.

The status of cultural resources surveys and reporting is summarized in **Table 4-7** (Attachment U).

The title of the report on file with the Virginia Department of Historic Resources is *Phase I Cultural Resource Identification Survey, Southeastern Trail Project, Fauquier, Pittsylvania, and Prince William Counties, Virginia*.

The Project is located in the following historic districts: Calverton HD, Auburn Battlefield HD, Elk Run-Germantown-Cedar Run Rural HD, and Rappahannock Station I Battlefield HD.

Historic properties were identified within or adjacent to the project site, along with buildings or structures 50 years old or older. Figures illustrating these features are provided are Attachment V.

8 Wetlands, Waters, and Dunes/Beach Impact Information

Environmental field surveys for the Project were conducted in January 2018 and February 2018 along the Manassas Loop. Waterbody and wetland delineations were performed in accordance with the USACE 1987 *Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region*. The Field Environmental Report (Attachment T) summarizes the consultations conducted with the agencies to date and summarizes the findings of the January 2018 and February 2018 field surveys, including copies of the wetland and waterbody datasheets.

Waterbodies crossed by the Manassas Loop are listed in **Table 2-2** (Attachment W). Wetlands that will be crossed by the Manassas Loop and located within the proposed workspace are listed in **Table 2-7** (Attachment X). Waterbodies and Wetlands are depicted on the Aerial Photograph-Based Alignment Sheets (Attachment K).

Although Prince William County is part of Tidewater Virginia, waters crossed by the Manassas Loop in this county are non-tidal perennial, intermittent, and ephemeral streams. The VDEQ classification of impacted resources should be Non-tidal waters Class III for all affected systems. Transco is not aware of any wetlands, open water, or streams that are located within the proposed project that are also under a deed restriction, conservation easement, restrictive covenant, or other land-use protective instrument.

8.1 Waterbodies

8.1.1 Waterbody Construction Procedures

In general, hazardous materials storage, concrete coating, equipment/vehicle parking, refueling, herbicide application, or pesticide use will occur in upland areas located more than 100 feet from the edge of a

waterbody (or wetland) in accordance with the Transco Procedures (Attachment E) and the Transco SPCC Plan (Attachment Y).

ATWS will typically be required on both sides of a waterbody crossing to store materials and trench spoil. ATWS areas will be located at least 50 feet away from the waterbody edge, assuming topographic and other site-specific conditions permit this setback.

Transco will generally require a typical 110-foot-wide construction ROW through waterbodies (where feasible) to allow for the installation of equipment crossings. Transco proposes to cross waterbodies that have perceivable flow at the time of crossing using the dam and pump method. Upland construction techniques will be used to cross waterbodies when there is no perceivable flow at the time of crossing. Equipment to perform a dam and pump crossing will be onsite as a contingency should perceptible flow in waterbodies begin during construction.

Waterbody crossings will be perpendicular to the flow where practicable. Grading at approaches to waterbodies may be required to create a safe work surface and to allow the necessary area for pipe bending. If grading is required, it will be directed away from the waterbody to reduce the possibility of disturbed soils being transported into the waterbody by wind or water erosion. Waterbody crossing methods for each waterbody crossed by the Project are identified in **Table 2-2** (Attachment W).

As part of construction of the Project, access to the permanent ROW will be primarily via existing roads. One new permanent access road (AR-FQ-010) will be constructed to provide access to MLV No. 180-22. One new access road (AR-FQ-003) will also be constructed to provide access to the Manassas Loop during construction and will be restored to pre-construction condition or better following construction, as requested by the landowner(s). All other proposed access roads are existing. Access road crossings of waterbodies will occur where there are existing culverts and/or bridges above the Ordinary High Water Mark (OHWM). No waterbody impacts are anticipated due to use of access roads and no waterbodies will be impacted as a result of construction of MLVs.

8.1.2 Waterbody Restoration

Completed waterbody crossings will be restored to the original bed and bank contours and will be stabilized within 24 hours of completion to the extent practicable. Erosion prevention and revegetation will be performed utilizing mulch, jute hatching, or bonded fiber blankets along the waterbody banks. Seeding of disturbed ROW approaches to waterbody crossings will be completed immediately after final ROW grading. Where necessary, slope breakers will be installed adjacent to waterbody banks to minimize the potential for erosion. Temporary sediment barriers, such as silt fence or other BMPs, will be maintained across the ROW until a permanent vegetation cover is established.

A 25-foot-wide riparian corridor will be allowed to revegetate naturally adjacent to waterbodies within the construction ROW. A 10-foot-wide area centered on the pipeline may be maintained to facilitate periodic pipeline corrosion/leak surveys. Trees greater than 15 feet in height and within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent ROW during maintenance activities.

8.1.3 Surface Water Impacts and Mitigation Measures

Construction activities from the Project, particularly clearing, dry crossings, hydrostatic test discharges, and spills or leaks of hazardous liquids have the potential to impact surface water conditions and quality. Pipeline waterbody crossings can result in a temporary increase in turbidity and may result in downstream sedimentation. Surface runoff and erosion from cleared ROWs can also increase in-stream turbidity and sedimentation. Other potential negative effects include spills or leaks of hazardous materials from nearby refueling stations or equipment failures that could have immediate effects on aquatic resources and potentially contaminate waterbodies downstream of the release point.

Similarly, long-term effects on water quality can occur from pipeline construction activities. Alteration of waterbody banks and removal of riparian corridor vegetation, if not stabilized and revegetated properly, can result in soil erosion and waterbody bank sloughing. Over time, these effects could result in large quantities of sediment deposition into the waterbody. Removal of riparian vegetation and increased turbidity can increase water temperatures and reduce suitability of habitat for fish and mussel species.

To minimize effects at waterbody crossings during construction, operation, and maintenance, Transco will construct the Project in accordance with the BMPs and erosion control devices (ECDs) outlined in the Project Erosion and Sedimentation Control Plan and with all federal and state regulations and permit requirements including stormwater permit requirements. Where preconstruction baseline waterbody surveys are conducted, post-construction surveys will be conducted and compared to the baseline surveys. If significant changes from pre-construction conditions are detected, Transco will coordinate with the applicable regulatory authorities to return the site to as near to preconstruction conditions as possible.

To minimize the potential for sedimentation to waterbodies caused by erosion from adjacent construction activities, trench spoil that is excavated from waterbodies and banks will be placed in adjacent ATWS areas. ECDs and other BMPs, will be placed at the downslope edges of the spoil piles to prevent sediment from entering the waterbody. After pipeline placement is complete, the temporary spoil material will be placed back in the trench and the waterbodies and bank will be restored as close to pre-construction contours as feasible. Waterbody banks and riparian corridors will then be revegetated in accordance with the Project Erosion and Sedimentation Control Plan, and any applicable agency requirements. As previously discussed, the open trench may accumulate water from either groundwater intrusion or precipitation during construction. In such cases, the trench will be dewatered periodically to allow for proper and safe construction.

In accordance with the Project SPCC Plan (Attachment Y) any hazardous materials, chemicals, lubricating oils, solvents, or fuels used during construction will be stored in upland areas at least 100 feet from wetlands and waterbodies. Additionally, no refueling or lubricating of vehicles or equipment will be performed within 100 feet of a waterbody. Transco will conduct routine inspections of tanks and storage areas to help reduce the potential for spills or leaks of hazardous materials.

8.1.4 Compensatory Mitigation

Given the rapidity of construction across waterbodies and the restoration procedures outlined in the Transco Procedures (Attachment E), no loss of waters or waterbody function is anticipated. Aside from the mitigation measures described above, Transco does not propose any compensatory mitigation (e.g., purchase of mitigation credits or design of a permittee responsible mitigation area) for waterbodies.

8.2 Wetlands

8.2.1 Construction Operations

Efforts will be made before, during, and after construction to minimize the extent and duration of Project-related disturbance to wetland resources. As previously discussed, Transco, in accordance with the Transco Procedures, will maintain the following setbacks from surface water and wetland resources throughout construction and operation (unless otherwise noted):

- Active construction work areas (Construction ROW and temporary workspace) will be set back a minimum of 50 feet
- Construction spoil piles will be set back a minimum of 50 feet
- No hazardous materials storage, concrete coating, equipment/vehicle parking, refueling, herbicide application, or pesticide use will occur within 100 feet

The construction and operation of the Manassas Loop will be in accordance with effective, applicable regulations and permit requirements. Appropriate construction procedures and erosion and sediment-

control techniques will be implemented. Pipeline construction across non-navigable waterbodies and wetlands is regulated by the USACE under Section 404 of the Clean Water Act (CWA). Construction of the Manassas Loop will comply with conditions of the Nationwide Permit anticipated to be issued by the USACE for activities required for the construction, maintenance, and repair of utility lines and associated facilities in waters of the U.S. (Nationwide Permit 12).

8.2.2 Construction Impacts

The construction of the Manassas Loop will result in wetland impacts, including both temporary impacts on Palustrine Emergent (PEM) and Palustrine Forested (PFO) wetlands and permanent impacts on PFO wetlands. **Table 2-7** (Attachment X) summarizes the proposed temporary and permanent wetland impacts associated with the pipeline facilities. Because temporarily disturbed wetlands for pipeline installation will be returned to preconstruction conditions, there will be no permanent loss of wetlands from construction of the pipeline. The only permanent wetland impacts associated with the Project will be a conversion of forested wetlands to emergent or scrub-shrub wetlands as a result of vegetation maintenance of the permanent cleared ROW. Temporary impacts on wetlands may include soil disturbance, temporary alteration of hydrology, and loss of vegetation. No permanent filling of wetlands is proposed along the pipeline. Upon completion of construction, topsoil, contour elevations, and hydrologic patterns will be restored to pre-construction conditions to the extent practicable, and affected areas will be reseeded or replanted to promote the re-establishment of native hydrophytic vegetation. The Temporary Construction ROW and ATWS areas will be restored to preconstruction grades and contours and reseeded.

As part of construction of the Project, access to the Permanent ROW will be primarily via existing roads. One new permanent access road (AR-FQ-010) will be constructed to provide access to MLV No. 180-22. One new access road (AR-FQ-003) will also be constructed to provide access to the Manassas Loop during construction and will be restored to pre-construction condition or better following construction, as requested by the landowner(s). All other proposed access roads are existing. No wetland impacts are anticipated due to use of access roads.

8.2.3 Minimization of Impacts

Transco will minimize impacts to wetland areas by complying with the applicable permit conditions issued by appropriate regulatory agencies with respect to construction and operation of the Project facilities within wetlands, and through implementation of the wetland construction procedures described in the Transco Procedures (Attachment E). Construction in and around wetland areas will be completed in the shortest amount of time practicable to reduce the amount of time wetland soils are exposed, minimizing the opportunity for soil loss and reducing the amount of time during which wetland functions are affected. In addition, Transco has reduced workspace in and around wetlands in accordance with FERC requirements. During operation of the Project, wetlands within the ROW will be maintained in accordance with the Transco Procedures. In forested wetlands, Transco will minimize tree clearing to the extent practicable while maintaining safe construction conditions. Equipment mats will be used to cross most wetland areas and decompaction will be performed if necessary. The top 12 inches of soil will be segregated from the area disturbed by trenching activities, except in areas of saturation, and will be immediately backfilled to preserve the existing seedbank.

Restoring wetlands to original configurations and contours will assist in maintaining preconstruction hydrology, minimizing impacts on wetlands. Stabilization of disturbed upland areas adjacent to wetlands will minimize sediment transport into wetlands, protecting wetlands from filling with sediment and maintaining functions long-term. Erosion controls, including silt fence and/or staked BMPs, also will be put in place to protect wetlands from sediment originating from disturbed areas in adjacent uplands during construction. Seed mixes and mulch spread on the restored topsoil for temporary stabilization will be applied according to the mixes recommended by the appropriate regulatory agency, landowner or land manager. The use of fertilizers will not be permitted. Post-construction maintenance and monitoring of the ROW will be performed in impacted wetlands to assess restoration and revegetation measures.

Monitoring efforts will include documenting occurrences of exotic invasive species in wetlands to compare to pre-construction conditions and will continue for a minimum of three years after construction. If after three years of monitoring the densities of invasive species are documented below or consistent with off ROW densities, then Transco will end monitoring activities upon approval from the appropriate regulatory agencies (such as USACE). The use of herbicides or pesticides for targeted invasive species control may be implemented if necessary and only in accordance with approval from the applicable regulatory agency. Herbicides and pesticides will not be used within 100 feet of wetlands or waterbodies.

8.2.4 Mitigation Measures

Transco will protect and minimize potential adverse effects on wetlands by expediting construction in and around wetlands, by restoring wetlands to their original configurations and contours, by segregating topsoil during excavation where applicable, by permanently stabilizing upland areas near wetlands as soon as possible after backfilling, by inspecting the ROW periodically during and after construction and by repairing any erosion control or restoration features until permanent revegetation is successful. Transco will comply with the applicable permit conditions issued by federal, state, and local permitting agencies.

8.2.5 Compensatory Mitigation

Transco proposes to provide compensatory mitigation to offset the temporary and permanent loss of the canopy layer in forested wetlands. Mitigation banks servicing the Project watersheds provide credits based on compensatory ratios. For forested impacts where clearing and grubbing will occurred the ratio is 2:1 and where clearing only will occur 1:1. Project forested wetland impacts total 0.95 acre. Clearing and grubbing will only occur over that portion of the ROW immediately over the trench (approximately 5 feet either side of centerline for a total width of 10 ft). Approximately 0.07 acre is in the zone over the trench. The remaining 0.88 acre will be cleared but not grubbed. Mitigation credits needed were calculated as follows:

0.88 acre (clearing only) X 1	= 0.88 credits
0.07 acre (clearing and grubbing) X 2	= 0.14 credits
Total credits need	= 1.02 credits

Transco proposes to purchase 1.02 credits from an USACE approved mitigation bank servicing the Manassas Loop watershed.

9 Applicant, Agent, Property Owner, and Contractor Certifications

Transco is the applicant and owner of the Project. Transco authorizes Cardno to function as their agent. A contractor has not been selected at this time to perform the work.

Signatures are provided on the JPA form.

10 Private Piers, Marginal Wharves, and Uncovered Boat Lifts

This section does not apply.

11 Boathouses, Gazebos, Covered Boat Lifts, and other Roofed Structures over Waterways

This section does not apply.

12 Marinas and Commercial, Governmental, and Community Piers

This section does not apply.

13 Free Standing Mooring Piles, Osprey Nesting Poles, Mooring Buoys, and Dolphins

This section does not apply.

14 Boat Ramps

This section does not apply.

15 Tidal/Nontidal Shoreline Stabilization Structures

This section does not apply.

16 Beach Nourishment

This section does not apply.

17 Dredging, Mining, and Excavating

This section does not apply.

18 Fill (not associated with backfill shoreline structures) and Other Structures (other than piers and boathouses) In Wetlands Or Waters, Or On Dunes/Beaches

This section does not apply.

19 Nontidal Stream Channel Modifications for Restoration or Enhancement, or Temporary or Permanent Relocations

This section does not apply.

20 Utility Crossings

All crossings of waters will be trenched.

The construction corridor will be cleared of vegetation using a combination of mechanized land clearing that disturbs the soil surface and cutting vegetation above the soil surface.

Construction procedures are described in Sections 3.1.2, 8.1, and 8.2 above.

The Project will not include empty conduits for any additional utilities that may propose to co-locate at a later date.

No navigable waterways will be crossed by the Project.

The Project will not involve powerlines or electrical circuits.

There will be no excess of excavated material. All excavated material will be used during restoration processes described in the Transco Plan (Attachment D) and Transco Procedures (Attachment E).

Excess material will not be stockpiled in wetlands.

Although a new permanent access road (AR-FQ-010) will be constructed to provide access to MLV No. 180-22, it will not be placed through wetlands or streams.

The 50 foot permanent ROW will be continually maintained in accordance with the Transco Procedures (Attachment E).

21 Road Crossings

One new permanent access road (AR-FQ-010) will be constructed to provide access to MLV No. 180-22. The new permanent access road will not be placed through wetlands or streams.

New culverts are not proposed as part of the Project. If culvert replacement is determined to be required during pipeline construction across roadways, the replaced culverts will be of like kind in dimensions and placement.

The new permanent access road does not include a bridged crossing.

22 Impoundments, Dams, and Stormwater Management Facilities

This section does not apply.

23 Outfalls not Associated with Proposed Water Withdrawal Activities

This section does not apply

24 Intakes, Outfalls, and Water Control Structures (Including all Proposed Water Withdrawal Activities)

This section does not apply.

25 Water Withdrawal Use(s), Need, and Alternatives

This section does not apply.

26 Public Comments/Issues for Major Water Withdrawals or Interbasin Transfers

This section does not apply.

Appendix A – Adjacent Property Owner's Acknowledgement Form

Transco has not distributed the form. Please refer to Section 5.1 for procedures Transco followed to notify property owners.

Appendix B – USACE Regional Permit 17 Certificate of Compliance Form

This Appendix does not apply.

Appendix C – Chesapeake Bay Preservation Act Information

The portion of the Manassas Loop in Prince William County is considered Tidewater Virginia.

The Project will cross nontidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow and a buffer area not less than 100 feet in width located adjacent to and landward of the components listed above, and along both sides of any water body with perennial flow.

GIS files were received from Prince William County in January 2018 of known Resource Protection Areas (RPAs). The Project crosses RPAs associated with South Run and Kettle Run. Through communication with Prince William County Public Works-Watershed Management (Attachment Z), it has been confirmed that the proposed Project and associated encroachment into the RPAs are considered exempt activities

under the Design and Construction Standards Manual (Section 740.04(B)) and does not require any permit from Prince William County.

Appendix D – Sample Drawings

Alignment sheets for the Manassas Loop are provided as Attachment K. Typical pipeline construction sequence and typical construction ROW configuration drawings are provided as Attachment F.

Transcontinental Gas Pipe Line
Company, LLC (Transco)

Attachments

Attachment A
General Locations Maps

Attachment B
Permanent and Temporary Facilities Figures

Attachment C
Table 1-3 Access Roads for the Southeastern Trail Project

Attachment D
Transco Erosion Control, Revegetation, and Maintenance Plan

Attachment E
Transco Wetland and Waterbody Control and Mitigation Procedures

Attachment F
Typical Pipeline Construction Sequence and Typical Construction ROW Configuration Drawings

Attachment G
Table 1-5 Road Crossings for the Southeastern Trail Project

Attachment H
Table 1-6 Railroad Crossings for the Southeastern Trail Project

Attachment I
Table 1-7 Major Utility Line Crossings for the Southeastern Trail Project

Attachment J
Blasting Plan

Attachment K
Aerial Alignment Sheets

Attachment L
Table 1-8 Co-Location with Existing Corridors for the Southeastern Trail Project

Attachment M
Table 10-1 Comparison of the Project and Compression – Intensive System Alternative Operations Emissions

Attachment N
Table 10-2 Comparison of the Project and Compression – Intensive System Alternative Operations Emissions

Attachment O
Table 10-3 Comparison of the Project and the Loop-Intensive System Alternative

Attachment P
Table 1-4 Comparison of Major Route Alternatives

Attachment Q
Figure 10-3 Route Variation A

Attachment R
Table 10-5 Comparison of Route Variations

Attachment S
Landowner Complaint Resolution Procedure

Attachment T
Field Environmental Report

Attachment U
Table 4-7 Cultural Resources Surveys Status for the Southeastern Trail Project

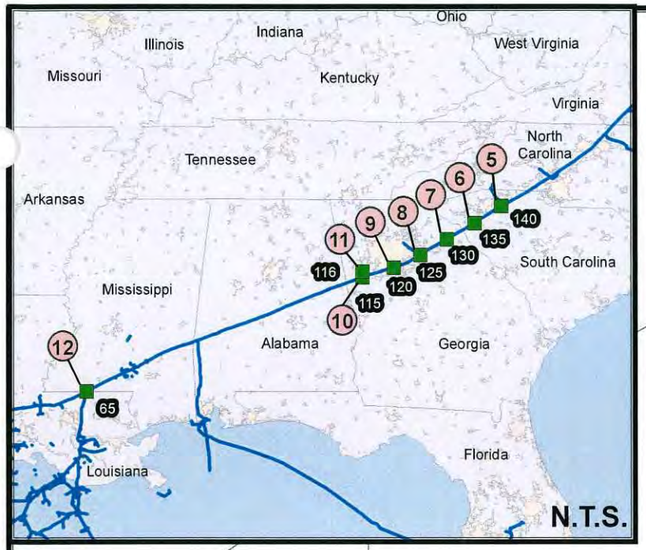
Attachment V
Cultural Resource Figures

Attachment W
Table 2-2 Waterbodies Crossed by the Southeastern Trail Project

Attachment X
Table 2-7 Wetlands Crossed by the Southeastern Trail Project

Attachment Y
Transco Spill Prevention, Control, and Countermeasure Plan

Attachment Z
Prince William County Correspondence



WV

VA

RANDOLPH
GRANT
HARDY
PENDLETON
POCAHONTAS
HIGHLAND
AUGUSTA
BATH
ROCKBRIDGE
ALLEGHANY
GREENBRIER
FAYETTE
COVINGTON
CLIFTON FORGE
LEXINGTON
BUENA VISTA
BOTETOURT
AMHERST
LYNCHBURG
BEDFORD CITY
BEDFORD
CAMPBELL
FRANKLIN
PITTSYLVANIA
HENRY
HALIFAX
NELSON
STAUNTON
WAYNESBORO
ROCKINGHAM
HARRISONBURG
SHENANDOAH
WARREN
PAGE
RAPPAHANNOCK
FAUQUIER
PRINCE WILLIAM
FAIRFAX
CULPEPER
MADISON
GREENE
STAFFORD
FREDERICKSBURG
ALBEMARLE
CHARLOTTESVILLE
LOUISA
CAROLINE
FLUVANNA
HANOVER
GOOCHLAND
HENRICO
RICHMOND CITY
POWHATAN
CUMBERLAND
BUCKINGHAM
APPOMATTOX
CHESTERFIELD
AMELIA
PRINCE EDWARD
NOTTOWAY
CHARLOTTE
LUNENBURG

1
2
3
4
STA 185
STA 180
STA 175
STA 170
STA 165

PROPOSED PROJECT SCOPE
SOUTHEASTERN TRAIL PROJECT

PIPELINE	LENGTH IN MILES	MILEPOSTS
1) 42" D Line Loop – Fauquier & Prince William Counties, VA	7.72	M.P. 1568.13 to M.P. 1575.85 between STA 180 & 185

FACILITY MODIFICATIONS

2) STA 185 – Uprate existing EMD driver from 25,000 to 30,000 HP and regear the associated variable speed drive
3) STA 175 – Add one 22,490 ISO HP Titan 130 compression unit and station cooling. Uprate existing EMD driver from 33,000 to 41,250 HP and rewheel the associated centrifugal compressor
4) STA 165 – Add two 22,490 ISO HP Titan 130 compression units, station cooling, and miscellaneous piping modifications. Demolish "A" building and replace 20,000 HP
5) STA 140 – Reverse station
6) STA 135 – Add deodorization facilities
7) STA 130 – Reverse station and add deodorization facilities
8) STA 125 – Add deodorization facilities
9) STA 120 – Add deodorization facilities
10) STA 116 – Add deodorization facilities
11) STA 115 – Reverse station and add deodorization facilities
12) STA 65 – Reverse station

LEGEND
- EXISTING TRANSCO COMPRESSOR STATION
- EXISTING TRANSCO PIPELINE
- PROPOSED PIPELINE
- URBAN AREAS

FIGURE 1-1a
N.T.S.

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
PROJECT LOCATION MAP
SOUTHEASTERN TRAIL PROJECT

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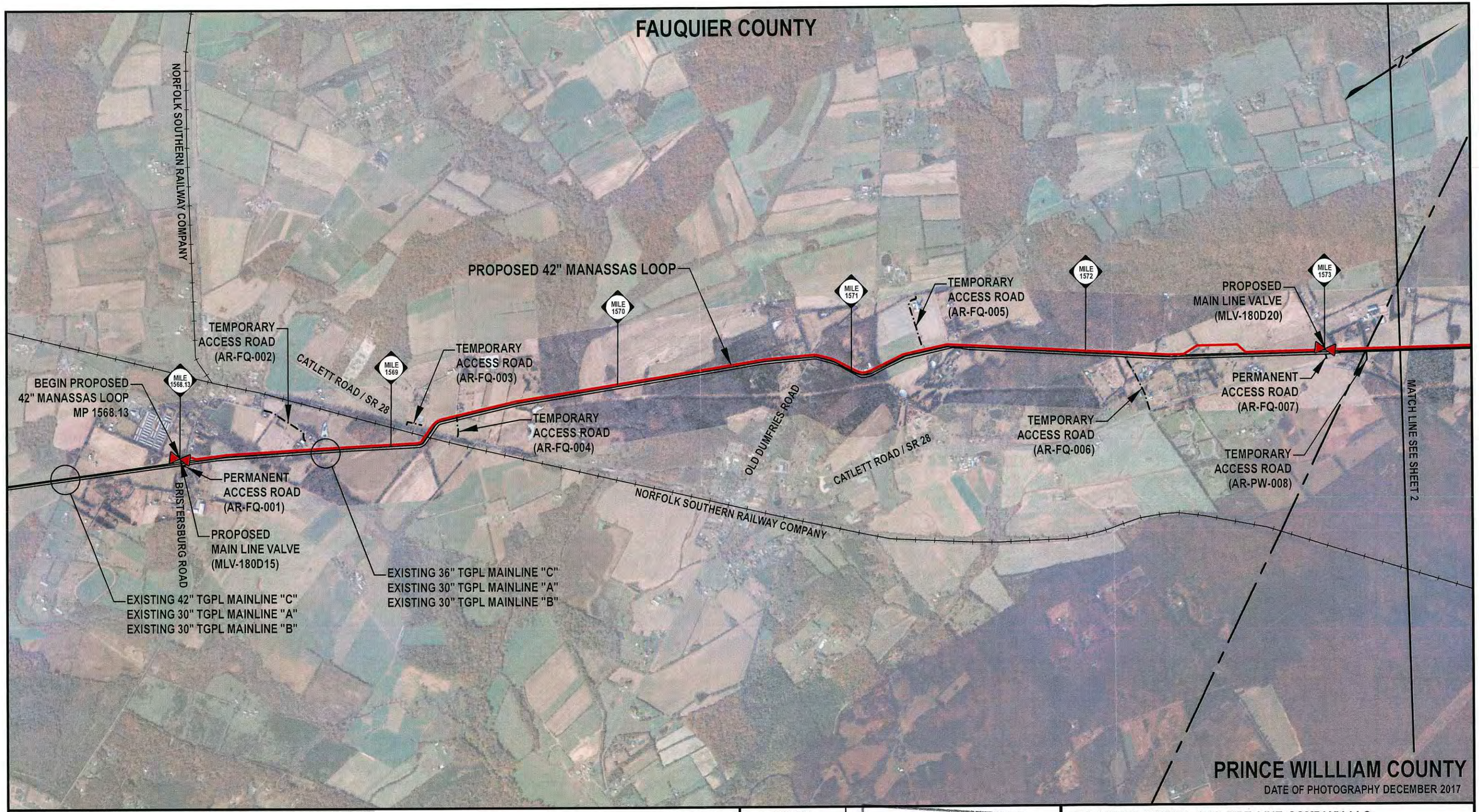

LEGEND

- PROPOSED 42" MANASSAS LOOP
- EXISTING PIPELINE
- ACCESS ROADS
- MAIN LINE VALVES
- COUNTY/TOWNSHIP BOUNDARY
- RAILROAD

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
AERIAL PHOTOGRAPHY MAP
PROPOSED 42" MANASSAS LOOP
SOUTHEASTERN TRAIL PROJECT
M.P. 1568.13 TO M.P. 1575.85
FAUQUIER & PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

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APPROVED BY: MJH	DATE: 12/08/17	DRAWING NUMBER: F-MANA-D-AP-01	SHEET 1 OF 2
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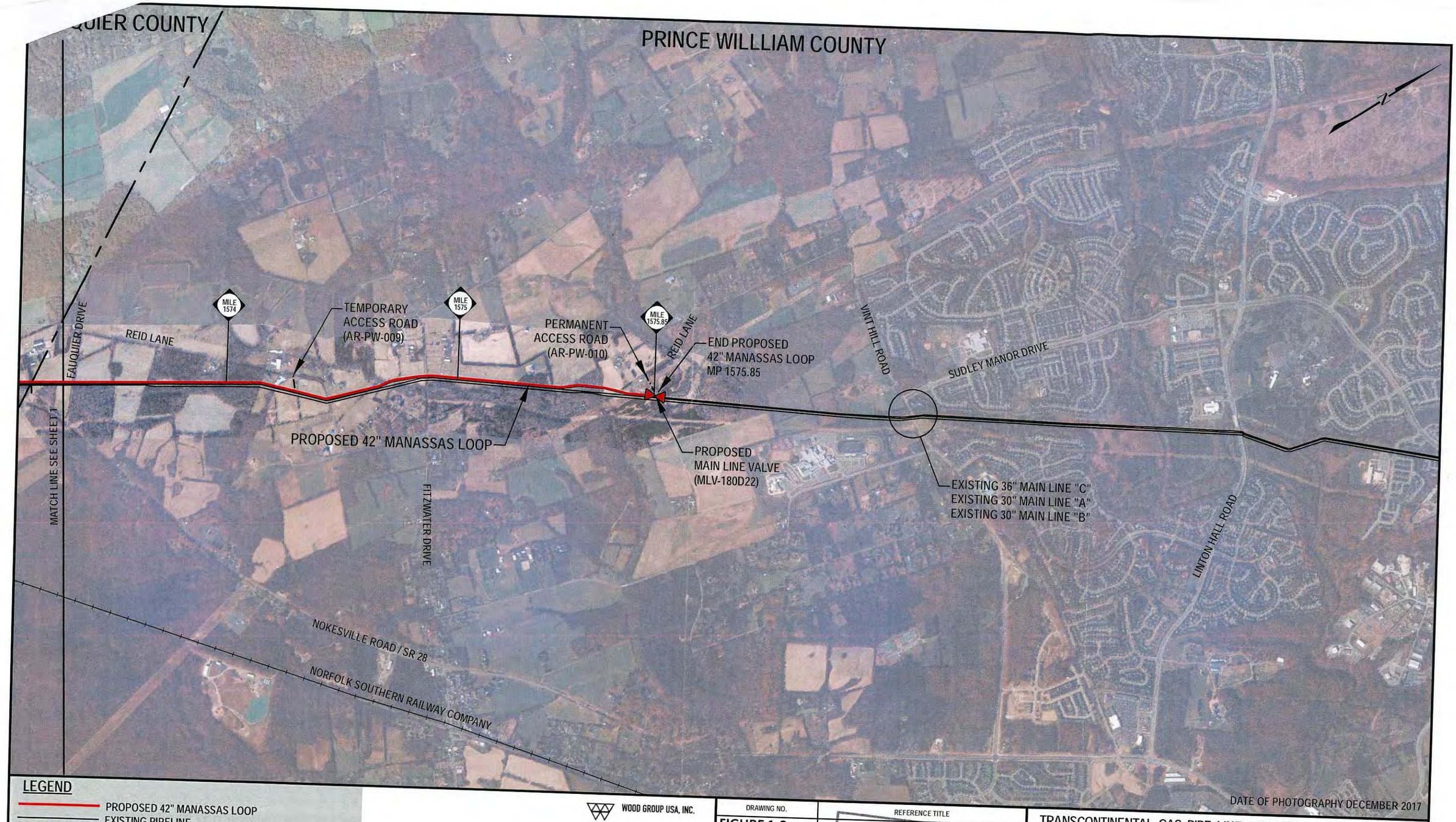

LEGEND

- PROPOSED 42" MANASSAS LOOP
- EXISTING PIPELINE
- ACCESS ROADS
- MAIN LINE VALVES
- COUNTY/TOWNSHIP BOUNDARY
- RAILROAD

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FIGURE 1-2	

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
AERIAL PHOTOGRAPHY MAP
PROPOSED 42" MANASSAS LOOP
SOUTHEASTERN TRAIL PROJECT
M.P. 1568.13 TO M.P. 1575.85
FAUQUIER & PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

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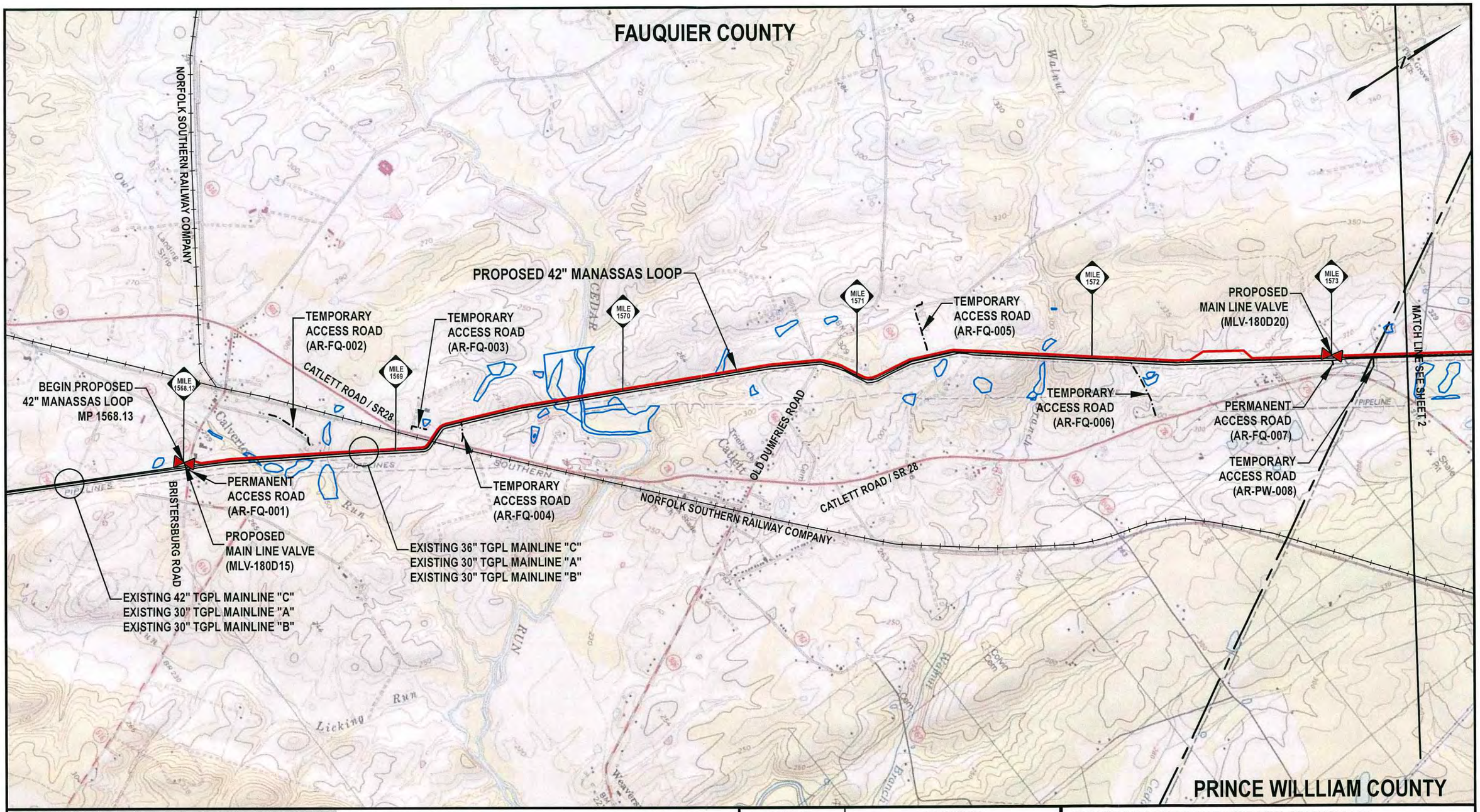

LEGEND

- PROPOSED 42" MANASSAS LOOP
- EXISTING PIPELINE
- ACCESS ROADS
- MAIN LINE VALVES
- COUNTY/TOWNSHIP BOUNDARY
- NWI BOUNDARY

NOTES:
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38077-F6
38077-F5

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DRAWING NO.: FIGURE 1-3

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TOPOGRAPHICAL MAP
PROPOSED 42" MANASSAS LOOP
SOUTHEASTERN TRAIL PROJECT
M.P. 1568.13 TO M.P. 1575.85
FAUQUIER & PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

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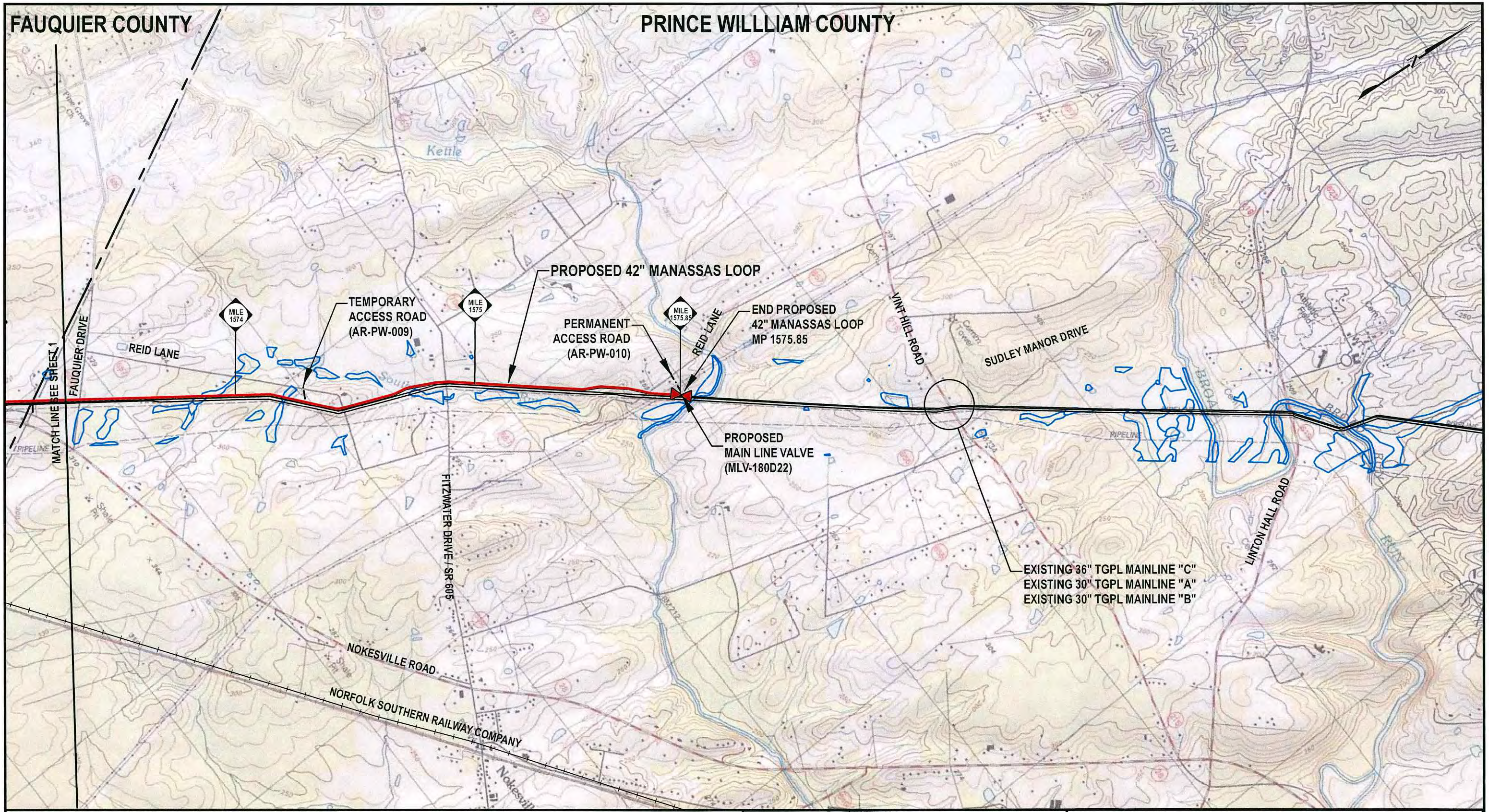

LEGEND

- PROPOSED 42" MANASSAS LOOP
- EXISTING PIPELINE
- ACCESS ROADS
- MAIN LINE VALVES
- COUNTY/TOWNSHIP BOUNDARY
- NWI BOUNDARY

NOTES:
DRG 7.5 MIN. QUAD MAP:
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38077-F5
38077-G5

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FIGURE 1-3

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TOPOGRAPHICAL MAP
PROPOSED 42" MANASSAS LOOP
SOUTHEASTERN TRAIL PROJECT
M.P. 1568.13 TO M.P. 1575.85
FAUQUIER & PRINCE WILLIAM COUNTIES, VIRGINIA

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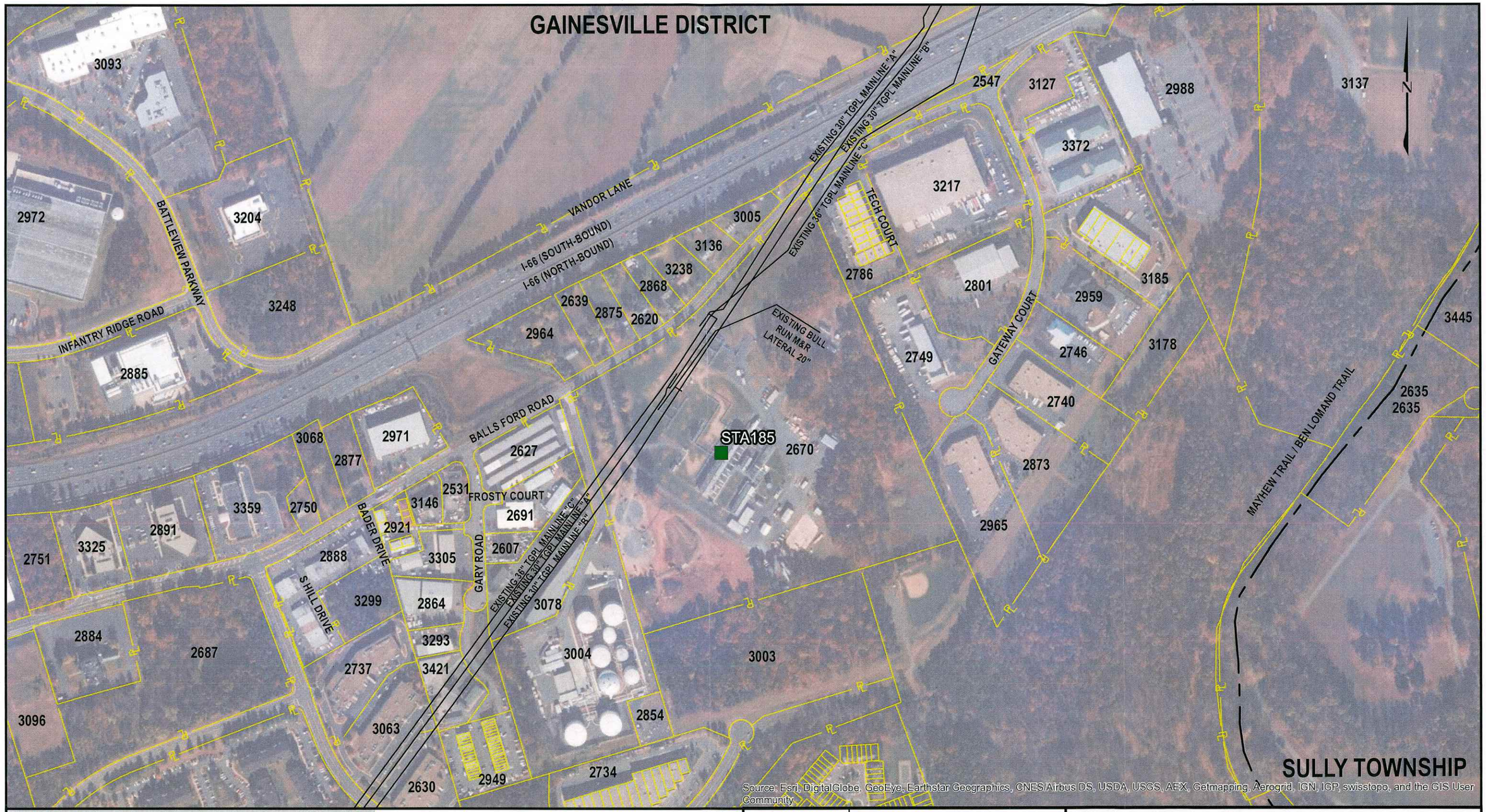

LEGEND

- EXISTING PIPELINE
- EXISTING FENCELINE
- PROPERTY LINES
- COUNTY/TOWNSHIP BOUNDARY
- ACCESS ROAD
- LIMITS OF DISTURBANCE

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0 400 800 1,200

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FIGURE 1-4	

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
AERIAL PHOTOGRAPHY MAP
PROPOSED FACILITY MODIFICATIONS
SOUTHEASTERN TRAIL PROJECT
COMPRESSOR STATION 185 - M.P. 1583.50
PRINCE WILLIAM COUNTY, VIRGINIA

Williams

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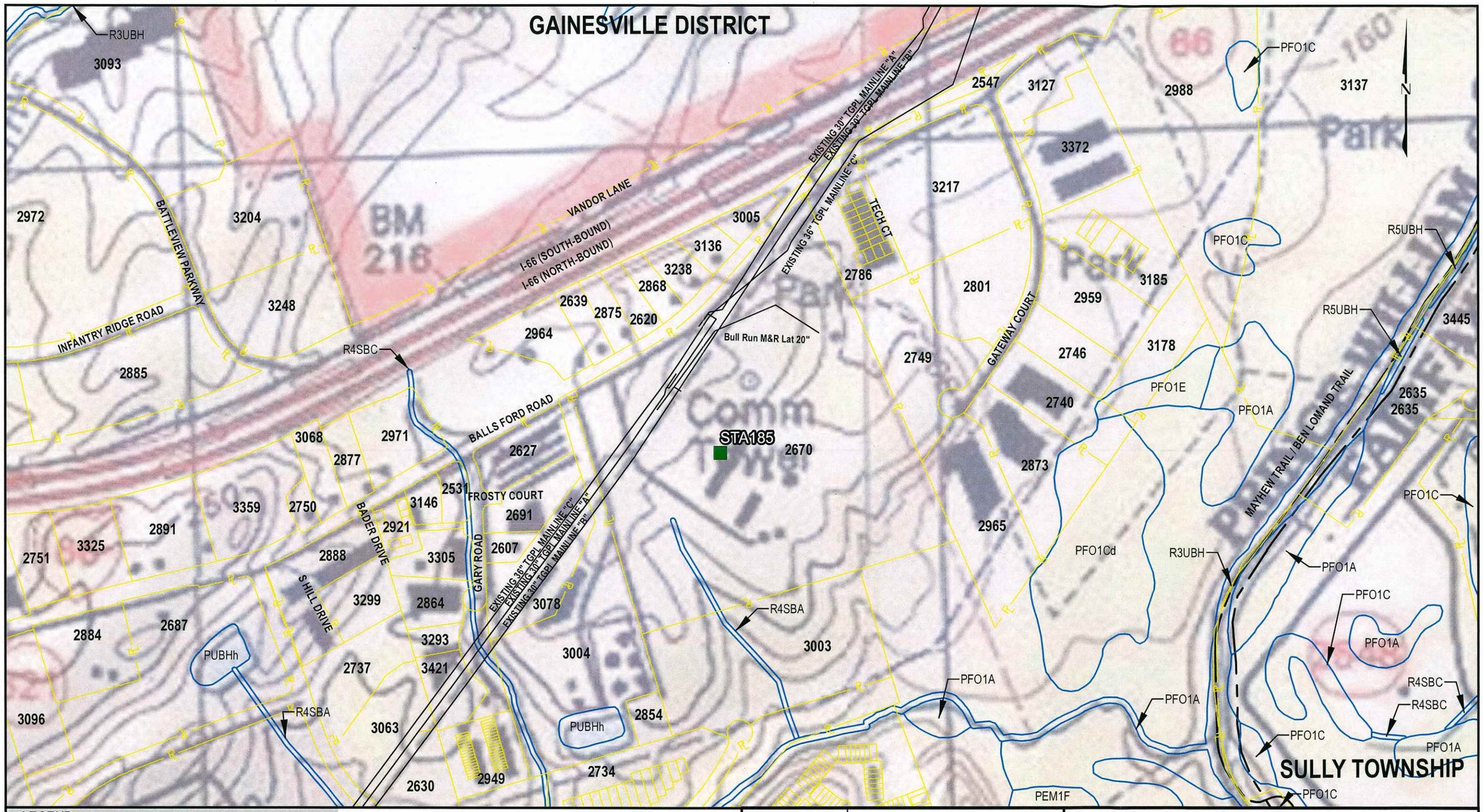
GAINESVILLE DISTRICT



LEGEND

- EXISTING PIPELINE
- EXISTING FENCELINE
- PROPERTY LINES
- COUNTY/TOWNSHIP BOUNDARY
- ACCESS ROAD
- LIMITS OF DISTURBANCE
- NWI BOUNDARY

NOTES:
DRG 7.5 MIN. QUAD MAP:
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38077-G4

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FIGURE 1-5	

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TOPOGRAPHICAL MAP
PROPOSED FACILITY MODIFICATIONS
SOUTHEASTERN TRAIL PROJECT
COMPRESSOR STATION 185 - M.P. 1583.50
PRINCE WILLIAM COUNTY, VIRGINIA

Williams

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APPROVED BY: MJH	DATE: 10/09/17	DRAWING NUMBER: F-MANA-CS185-TM-01		SHEET 1 OF 1	
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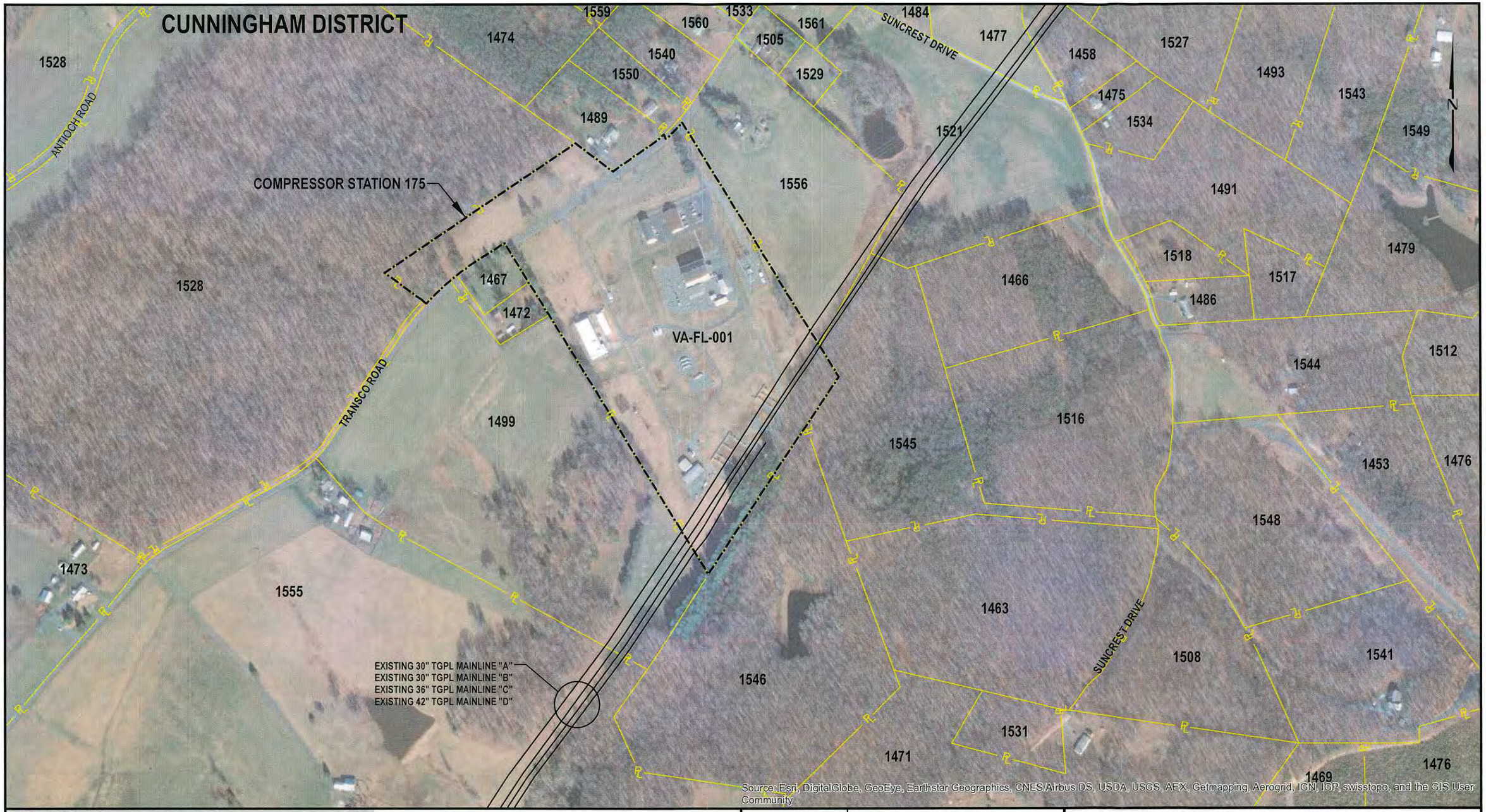

LEGEND

- EXISTING PIPELINE
- EXISTING FENCELINE
- PROPERTY LINES
- COUNTY/TOWNSHIP BOUNDARY
- ACCESS ROAD
- LIMITS OF DISTURBANCE.....35.79 ACRES

WOOD GROUP USA, INC.

0 400 800 1,200
SCALE IN FEET

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FIGURE 1-6	

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VIRGINIA RESOURCES COMMISSION

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
AERIAL PHOTOGRAPHY MAP
PROPOSED FACILITY MODIFICATIONS
SOUTHEASTERN TRAIL PROJECT
COMPRESSOR STATION 175 - M.P. 1499.40
FLUVANNA COUNTY, VIRGINIA

Williams

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APPROVED BY: MJH	DATE: 10/09/17	DRAWING NUMBER: F-MANA-CS175-AP-01	SHEET 1		
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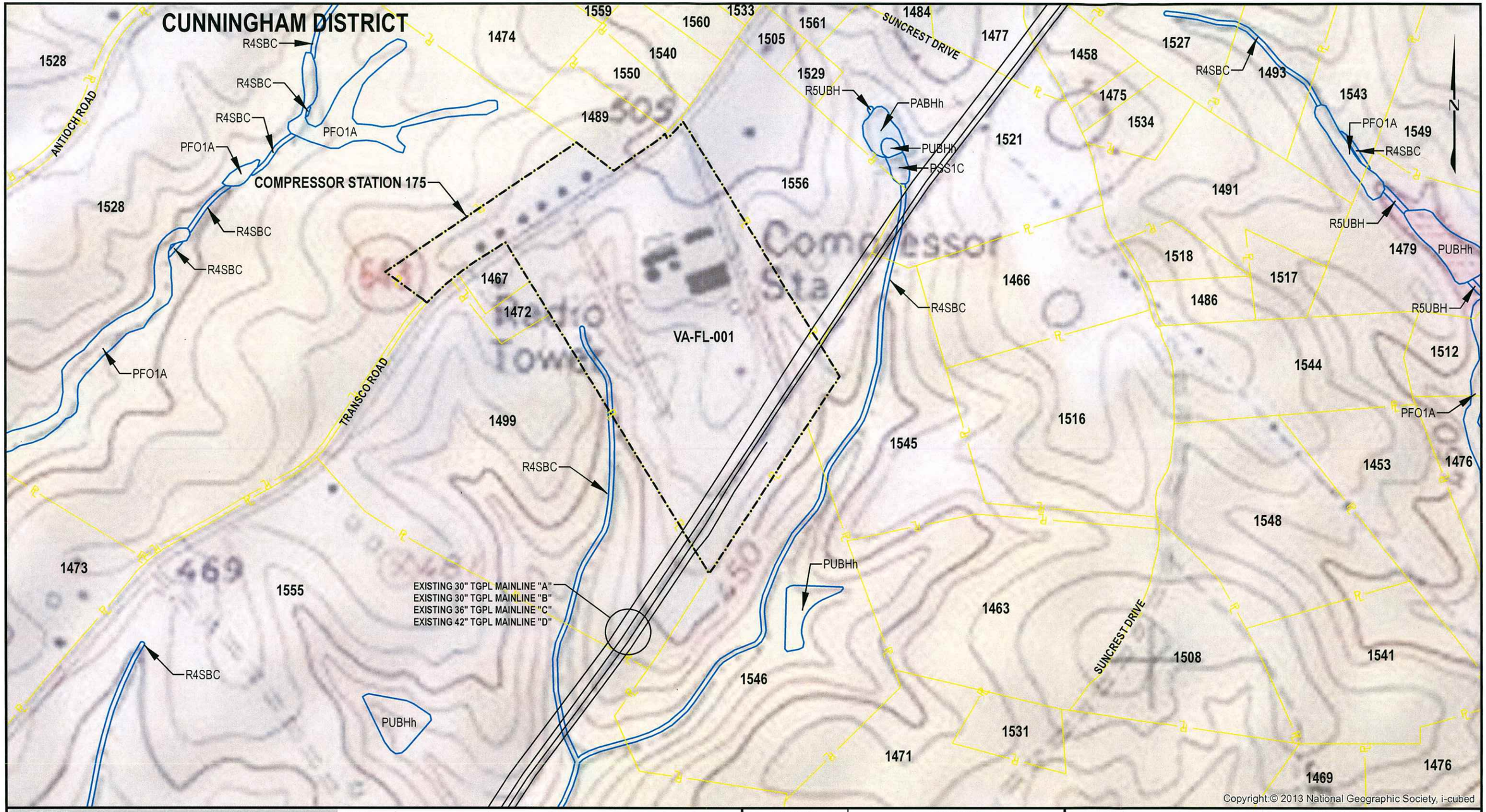
CUNNINGHAM DISTRICT



LEGEND

- EXISTING PIPELINE
- EXISTING FENCELINE
- PROPERTY LINES
- COUNTY/TOWNSHIP BOUNDARY
- ACCESS ROAD
- LIMITS OF DISTURBANCE.....35.79 ACRES
- NWI BOUNDARY

NOTES:
DRG 7.5 MIN. QUAD MAP:
37078-G4

WOOD GROUP USA, INC.

0 400 800 1,200
SCALE IN FEET

DRAWING NO.	REFERENCE TITLE
FIGURE 1-7	

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TOPOGRAPHICAL MAP
PROPOSED FACILITY MODIFICATIONS
SOUTHEASTERN TRAIL PROJECT
COMPRESSOR STATION 175 - M.P. 1499.40
FLUVANNA COUNTY, VIRGINIA

Williams

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WO: 1203328	ROUTE ID: 101	7:12 AM 4/4/2018	

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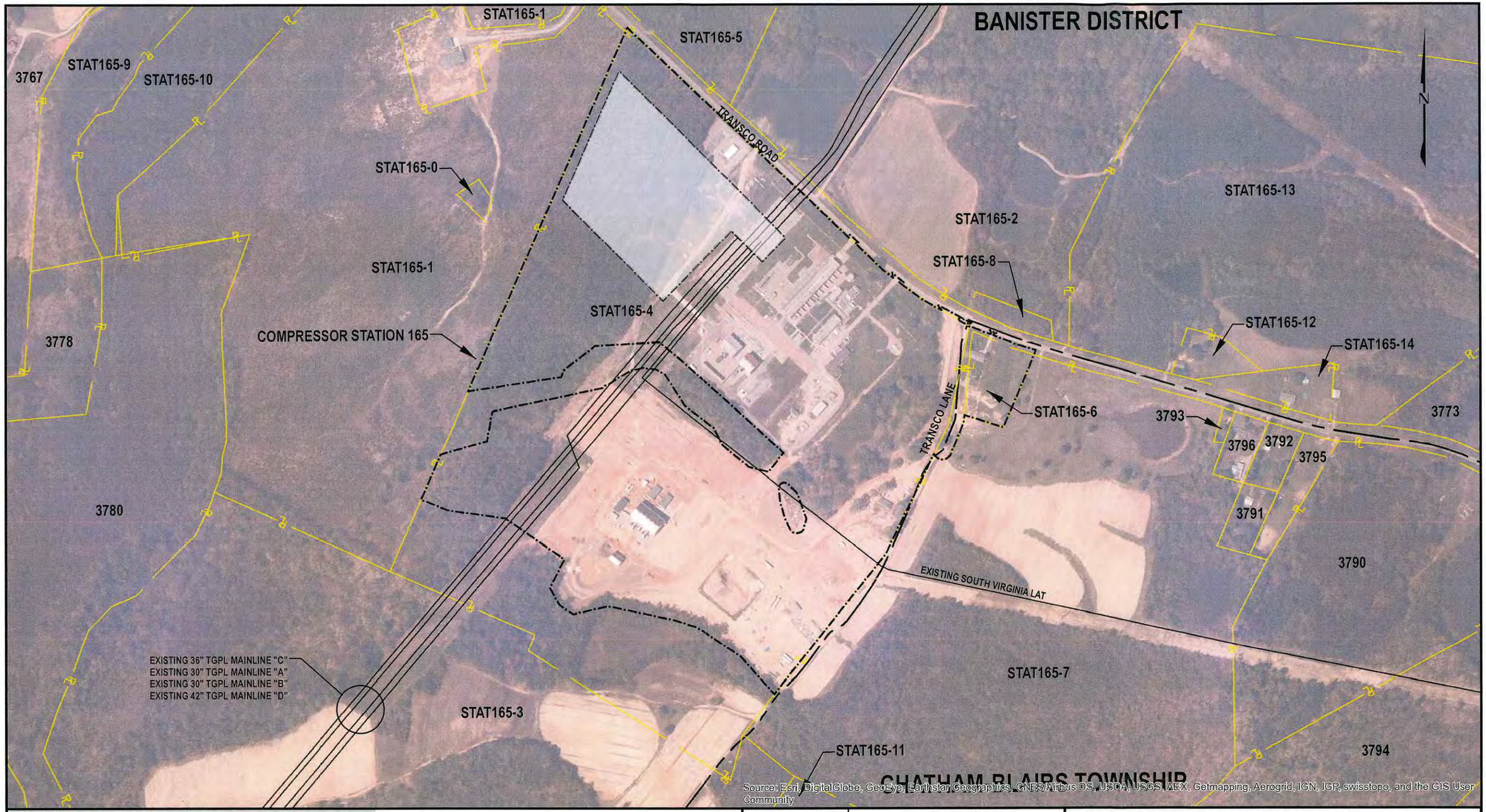

LEGEND

- EXISTING PIPELINE
- EXISTING FENCELINE
- PROPERTY LINES
- COUNTY/TOWNSHIP BOUNDARY
- ACCESS ROAD
- PERMANENT WORKSPACE.....9.98 ACRES
- LIMITS OF DISTURBANCE.....72.08 ACRES

WOOD GROUP USA, INC.

0 400 800 1,200
SCALE IN FEET

DRAWING NO.	REFERENCE TITLE
FIGURE 1-8	

RECEIVED
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MARINE RESOURCES COMMISSION

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
0	04/04/18	CNC	ISSUED FOR FERC FILING	1200753	DM	MJH

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
AERIAL PHOTOGRAPHY MAP
PROPOSED FACILITY MODIFICATIONS
SOUTHEASTERN TRAIL PROJECT
COMPRESSOR STATION 165 - M.P. 1413.00
PITTSYLVANIA COUNTY, VIRGINIA

Williams

DRAWN BY: CNC	DATE: 10/09/17	ISSUED FOR BID:	SCALE: 1"=400'
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APPROVED BY: MJH	DATE: 10/09/17	DRAWING NUMBER: F-MANA-CS165-AP-01	SHEET 1 OF 1
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BANISTER DISTRICT

STAT165-1
STAT165-5
3767
STAT165-9
STAT165-10
TRANSCO ROAD
STAT165-0
STAT165-13
STAT165-2
STAT165-1
STAT165-8
R5UBH
PUBHh
STAT165-4
R4SBC
COMPRESSOR STATION 165
STAT165-12
STAT165-14
3778
PUBHh
TRANSCO LANE
STAT165-6
3793
3773
R4SBC
PUBHh
3796
3792
3795
R5UBH
3780
3791
R4SBC
EXISTING SOUTH VIRGINIA LAT
3790
R4SBC
PUBHh
STAT165-7
STAT165-3
R5UBH
EXISTING 36" TGPL MAINLINE "C"
EXISTING 30" TGPL MAINLINE "A"
EXISTING 30" TGPL MAINLINE "B"
EXISTING 42" TGPL MAINLINE "D"
STAT165-11
3794
PFO1A
R4SBC

CHATHAM-BLAIRS TOWNSHIP

LEGEND

- EXISTING PIPELINE
- EXISTING FENCELINE
- PROPERTY LINES
- COUNTY/TOWNSHIP BOUNDARY
- ACCESS ROAD
- PERMANENT WORKSPACE.....9.98 ACRES
- LIMITS OF DISTURBANCE.....72.08 ACRES
- NWI BOUNDARY

NOTES:
DRG 7.5 MIN. QUAD MAP:
36079-G3

WOOD GROUP USA, INC.

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SCALE IN FEET

DRAWING NO.: FIGURE 1-9

REFERENCE TITLE

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MAY 30 2018
MARINE RESOURCES COMMISSION

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TOPOGRAPHICAL MAP
PROPOSED FACILITY MODIFICATIONS
SOUTHEASTERN TRAIL PROJECT
COMPRESSOR STATION 165 - M.P. 1413.00
PITTSYLVANIA COUNTY, VIRGINIA

Williams

DRAWN BY: CNC	DATE: 10/09/17	ISSUED FOR BID:		SCALE: 1"=400'	
CHECKED BY: DM	DATE: 10/09/17	ISSUED FOR CONSTRUCTION:		REVISION: 0	
APPROVED BY: MJH	DATE: 10/09/17	DRAWING NUMBER: F-MANA-CS165-TM-01		SHEET 1 OF 1	
WO: 1200753	ROUTE ID: 101	7:11 AM	4/4/2018		

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TABLE 1-3
Access Roads for the Southeastern Trail Project

Road		Transco Mainline MP [a]	New/ Existing	Public/ Private/ New	Current Conditions			Proposed Operations Use	Temporary Impacts (acres)	Permanent Impacts (acres)
ID No.	Road Name				Surface Type	Width (feet) [b]	Length (feet)			
Southern / Manassas Loop										
AR-FQ-001	Unnamed Road (Driveway from Bristersburg Road)	1568.2	Existing	Private	Dirt	14	48	Existing permanent access road to MLV 180-15	(Existing Access Road)	
AR-FQ-002	Old Calverton Road	1568.6	Existing	Public	Asphalt	10	1,166	None	0.28	--
AR-FQ-003	New Road (from Catlett Road)	1569.2	New	New	Dirt	20	384	None	0.18	--
AR-FQ-004	Unnamed Road (from Catlett Road)	1569.3	Existing	Public	Asphalt	9	415	None	0.10	--
AR-FQ-005	Unnamed Road (from Burwell Road)	1571.3	Existing	Public	Dirt	11	1,213	None	0.36	--
AR-FQ-006	Unnamed Road (from Catlett Road)	1572.1	Existing	Public	Asphalt	12	1,326	None	0.37	--
AR-FQ-007	Unnamed Road (Driveway from Old Nokesville Road)	1573.0	Existing	Private	Asphalt	28	76	Existing permanent access road to MLV 180-20	(Existing Access Road)	
AR-PW-008	Unnamed Road (from Old Nokesville Road)	1573.2	Existing	Private	Asphalt	10	208	None	0.05	--
AR-PW-009	Unnamed Road (from Reid Lane)	1574.3	Existing	Private	Dirt	12	270	None	0.08	--
AR-PW-010	Unnamed Road (from Reid Lane)	1575.9	New	New	Dirt	20	441	New permanent access road to MLV 180-22	--	0.21
								Total	**1.42**	**0.21**

a - Nearest MP at which access road intersects construction ROW.

b - Access road widths presented are conservative estimates for purposes of calculating impacts. No road widening is planned as a part of the Project.

Transcontinental Gas Pipe Line Company, LLC

Upland Erosion Control, Revegetation, and Maintenance Plan

Southeastern Trail Project

Docket No. CP18-

April 2018

Table 1
Justifications for the Transco Proposed Modifications to the FERC Upland Erosion Control, Revegetation, and Maintenance Plan

Section	FERC Version [a]	Transco Version [b]	Transco Justification [c]
I	(Entire Section I has been replaced)	***As outlined below, Transcontinental Gas Pipe Line Company, LLC (Transco) is proposing modifications to the FERC Plan (May 2013 Version) for the Southeastern Trail Project. This section will apply to all non-wetland areas of the Project. Wetland and waterbody features are addressed in the Transco Wetland and Waterbody Construction and Mitigation Procedures (Transco Procedures).*** ***Deviations that involve measures different from those contained in this Plan will only be permitted as certificated by the Commission or by written approval of the Director of the Office of Energy Projects (OEP) or designee.***	Provides an introduction to the Transco Plan.
II.A.4	(No existing text in FERC Version)	***Transco agrees to a FERC Third Party Compliance Monitoring Program for non-Federal and Federal land along the length of the Project.***	Commits Transco to a FERC Third Party Compliance Monitoring Program for non-Federal and Federal land along the length of the Project.
II.B.1	Ensuring compliance with the requirements of this Plan, the Procedures, the environmental conditions of the Certificate authorization, the mitigation measures proposed by the applicant (as approved and/or modified by the Certificate), other environmental permits and approvals, and environmental requirements in landowner easement agreements;	Ensuring compliance with the requirements of this Plan, the ***Transco*** Procedures, the environmental conditions of the Certificate authorization, the mitigation measures proposed by the applicant (as approved and/or modified by the Certificate), other environmental permits and approvals, and environmental requirements in landowner easement agreements;	Clarifies that Transco will implement modified FERC Wetland and Waterbody Construction and Mitigation Procedures (Transco Procedures) for the Project.
III.A.1	The project sponsor must ensure that appropriate cultural resources and biological surveys have been conducted.	***Transco will ensure*** that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies ***and that the extent of those surveys are sufficient to accommodate possible future need for activities outside certificated work areas (i.e., buffer areas).***	Clarifies that biological and cultural surveys have been conducted beyond the Project boundaries.

Table 1
Justifications for the Transco Proposed Modifications to the FERC Upland Erosion Control, Revegetation, and Maintenance Plan

Section	FERC Version [a]	Transco Version [b]	Transco Justification [c]
IV.A.1	Any project-related ground disturbing activities outside these Certificated areas, except those needed to comply with the Plan and Procedures (e.g., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) will require prior Director approval.	Any project-related ground disturbing activities outside these Certificated areas, except those needed to comply with ***this*** Plan and ***the Transco*** Procedures (e.g., slope, energy-dissipating devices, dewatering structures, drain tile system repairs) will require prior Director approval.	Clarifies that Transco will implement modified FERC Wetland and Waterbody Construction and Mitigation Procedures (Transco Procedures) for the Project.
IV.A.2	The construction right-of-way width for a project shall not exceed 75 feet or that described in the FERC application unless otherwise modified by a Certificate condition. However, in limited, non-wetland areas, this construction right-of-way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (such as side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.	The construction right-of-way width for a project shall not exceed ***that described*** in the FERC application unless otherwise modified by a Certificate condition.	Removes the conditional 'or' statement. Transco proposes to use a nominal 110-foot-wide temporary construction ROW for the Manassas Loop and a 75-foot-wide construction ROW in wetlands. Transco also proposes to use Additional Temporary Workspaces (ATWSs) in some upland and wetland areas, due to a variety of Project and site- specific considerations. The proposed increase in the nominal construction ROW will not impact or prevent the implementation of other measures to provide for upland erosion control and protection of waterbodies and wetlands. The proposed construction ROW will allow Transco to implement the FERC construction measures of the Transco Plan and the Transco Procedures while addressing site conditions and meeting OSHA regulations (29 CFR Part 1926.650-.652, Subpart P).
V.D.3.d	In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a-c.	In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a-c, ***or variances from this timing would be requested by Transco to FERC***.	Provides clarification for potential variance requests to complete seeding operations.

a – May 2013 FERC Upland Erosion Control, Revegetation, and Maintenance Plan
b – Changes indicated in ***bold italic*** text
c - Justification stating rationale for each proposed modification; Modifications are required to provide equal or greater measures than those provided in the FERC Plan

Contents

I. Applicability

As outlined below, Transcontinental Gas Pipe Line Company, LLC (Transco) is proposing modifications to the FERC Plan (May 2013 Version) for the Southeastern Trail Project. This section will apply to all non-wetland areas of the Project. Wetland and waterbody features are addressed in the Transco Wetland and Waterbody Construction and Mitigation Procedures (Transco Procedures).

Deviations that involve measures different from those contained in this Plan will only be permitted as certificated by the Commission or by written approval of the Director of the Office of Energy Projects (OEP) or designee.

A. The intent of this Plan is to assist project sponsors by identifying baseline mitigation measures for minimizing erosion and enhancing revegetation. Project sponsors shall specify in their applications for a new FERC authorization and in prior notice and advance notice filings, any individual measures in this Plan they consider unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe any alternative measures they would use. Project sponsors shall also explain how those alternative measures would achieve a comparable level of mitigation.

Once a project is authorized, project sponsors can request further changes as variances to the measures in this Plan (or the applicant's approved plan). The Director of the Office of Energy Projects (Director) will consider approval of variances upon the project sponsor's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;
2. is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or
3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Sponsors of projects planned for construction under the automatic authorization provisions in the FERC's regulations must receive written approval for any variances in advance of construction.

Project-related impacts on wetland and waterbody systems are addressed in the staff's Wetland and Waterbody Construction and Mitigation Procedures (Procedures).

II. Supervision and Inspection

A. Environmental Inspection

1. At least one Environmental Inspector is required for each construction spread during construction and restoration (as defined by section V). The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.
2. Environmental Inspectors shall have peer status with all other

activity inspectors.

3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the FERC's Orders, stipulations of other environmental permits or approvals, or landowner easement agreements; and to order appropriate corrective action.

4. ***Transco agrees to a FERC Third Party Compliance Monitoring Program for non-Federal and Federal land along the length of the Project.***

B. Responsibilities of Environmental Inspectors

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Inspecting construction activities for compliance with the requirements of this Plan, ***the Transco*** Procedures, the environmental conditions of the FERC's Orders, the mitigation measures proposed by the project sponsor (as approved and/or modified by the Order), other environmental permits and approvals, and environmental requirements in landowner easement agreements.

2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

3. Verifying that the limits of authorized construction work areas and locations of access roads are visibly marked before clearing, and maintained throughout construction;

4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;

5. Identifying erosion/sediment control and soil stabilization needs in all areas;

6. Ensuring that the design of slope breakers will not cause erosion or direct water into sensitive environmental resource areas, including cultural resource sites, wetlands, waterbodies, and sensitive species habitats;

7. Verifying that dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment into sensitive environmental resource areas, including wetlands, waterbodies, cultural resource sites, and sensitive species habitats; stopping dewatering activities if such deposition is occurring and ensuring the design of the discharge is changed to prevent reoccurrence; and verifying that dewatering structures are removed after completion of dewatering activities;

8. Ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;

9. Advising the Chief Construction Inspector when environmental conditions (such as wet weather or frozen soils) make it advisable to restrict or delay construction activities to avoid topsoil mixing or excessive compaction;

10. Ensuring restoration of contours and topsoil;
11. Verifying that the soils imported for agricultural or residential use are certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;
12. Ensuring that erosion control devices are properly installed to prevent sediment flow into sensitive environmental resource areas (e.g., wetlands, waterbodies, cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices;
13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:
    a. on a daily basis in areas of active construction or equipment operation;
    b. on a weekly basis in areas with no construction or equipment operation; and
    c. within 24 hours of each 0.5 inch of rainfall;
14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts;
15. Keeping records of compliance with the environmental conditions of the FERC's Orders, and the mitigation measures proposed by the project sponsor in the application submitted to the FERC, and other federal or state environmental permits during active construction and restoration;
16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase; and
17. Verifying that locations for any disposal of excess construction materials for beneficial reuse comply with section III.E.

III. Preconstruction Planning

The project sponsor shall do the following before construction:

A. Construction Work Areas

1. Identify all construction work areas (e.g., construction right-of-way, extra work space areas, pipe storage and contractor yards, borrow and disposal areas, access roads) that would be needed for safe construction. ***Transco will ensure*** that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies ***and that the extent of those surveys are sufficient to accommodate possible future need for activities outside certificated work areas (i.e., buffer areas).***
2. Project sponsors are encouraged to consider expanding any required

cultural resources and endangered species surveys in anticipation of the need for activities outside of authorized work areas.

3. Plan construction sequencing to limit the amount and duration of open trench sections, as necessary, to prevent excessive erosion or sediment flow into sensitive environmental resource areas.

B. Drain Tiles and Irrigation Systems

1. Attempt to locate existing drain tiles and irrigation systems.
2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction.
3. Develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.
4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available.

C. Grazing Deferment

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. Road Crossings and Access Points

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. Disposal Planning

Determine methods and locations for the regular collection, containment, and disposal of excess construction materials and debris (e.g., timber, slash, mats, garbage, drill cuttings and fluids, excess rock) throughout the construction process. Disposal of materials for beneficial reuse must not result in adverse environmental impact and is subject to compliance with all applicable survey, landowner or land management agency approval, and permit requirements.

F. Agency Coordination

The project sponsor must coordinate with the appropriate local, state, and federal agencies as outlined in this Plan and/or required by the FERC's Orders.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.
2. Develop specific procedures in coordination with the appropriate agencies to prevent the introduction or spread of invasive species, noxious weeds, and soil pests resulting from construction and restoration activities.
3. Develop specific procedures in coordination with the appropriate agencies and landowners, as necessary, to allow for livestock and

wildlife movement and protection during construction.

4. Develop specific blasting procedures in coordination with the appropriate agencies that address pre- and post-blast inspections; advanced public notification; and mitigation measures for building foundations, groundwater wells, and springs. Use appropriate methods (e.g., blasting mats) to prevent damage to nearby structures and to prevent debris from entering sensitive environmental resource areas.

G. Spill Prevention and Response Procedures

The project sponsor shall develop project-specific Spill Prevention and Response Procedures, as specified in section IV of the staff's Procedures. A copy must be filed with the Secretary of the FERC (Secretary) prior to construction and made available in the field on each construction spread. The filing requirement does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

H. Residential Construction

For all properties with residences located within 50 feet of construction work areas, project sponsors shall: avoid removal of mature trees and landscaping within the construction work area unless necessary for safe operation of construction equipment, or as specified in landowner agreements; fence the edge of the construction work area for a distance of 100 feet on either side of the residence; and restore all lawn areas and landscaping immediately following clean up operations, or as specified in landowner agreements. If seasonal or other weather conditions prevent compliance with these time frames, maintain and monitor temporary erosion controls (sediment barriers and mulch) until conditions allow completion of restoration.

I. Winter Construction Plan

If construction is planned to occur during winter weather conditions, project sponsors shall develop and file a project-specific winter construction plan with the FERC application. This filing requirement does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

The plan shall address:

1. winter construction procedures (e.g., snow handling and removal, access road construction and maintenance, soil handling under saturated or frozen conditions, topsoil stripping);
2. stabilization and monitoring procedures if ground conditions will delay restoration until the following spring (e.g., mulching and erosion controls, inspection and reporting, stormwater control during spring thaw conditions); and
3. final restoration procedures (e.g., subsidence and compaction repair, topsoil replacement, seeding).

IV. Installation

A. Approved Areas of Disturbance

1. Project-related ground disturbance shall be limited to the construction right-of-way, extra work space areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the FERC's Orders. Any project- related ground disturbing activities outside these Certified areas will require prior Director approval. This requirement does not apply to activities needed to comply with ***this*** Plan and ***the Transco*** Procedures (i.e., slope, energy-dissipating devices, dewatering structures, drain tile system repairs) or minor field realignments and workspace shifts per landowner needs and requirements that do not affect other landowners or sensitive environmental resource areas. All construction or restoration activities outside of authorized areas are subject to all applicable survey and permit requirements, and landowner easement agreements.

2. The construction right-of-way width for a project shall not exceed ***that described*** in the FERC application unless otherwise modified by a FERC Order. However, in limited, non-wetland areas, this construction right-of- way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (e.g., side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.

   Project use of these additional limited areas is subject to landowner or land management agency approval and compliance with all applicable survey and permit requirements. When additional areas are used, each one shall be identified and the need explained in the weekly or biweekly construction reports to the FERC, if required. The following material shall be included in the reports:

   a. the location of each additional area by station number and reference to previously filed alignment sheets, or updated alignment sheets showing the additional areas;

   b. identification of the filing at FERC containing evidence that the additional areas were previously surveyed; and

   c. a statement that landowner approval has been obtained and is available in project files.

   Prior written approval of the Director is required when the authorized construction right-of-way width would be expanded by more than 25 feet.

B. Topsoil Segregation

1. Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:

a. cultivated or rotated croplands, and managed pastures;

b. residential areas;

c. hayfields; and

d. other areas at the landowner's or land managing agency's request.

2. In residential areas, importation of topsoil is an acceptable alternative to topsoil segregation.

3. Where topsoil segregation is required, the project sponsor must:

a. segregate at least 12 inches of topsoil in deep soils (more than 12 inches of topsoil); and

b. make every effort to segregate the entire topsoil layer in soils with less than 12 inches of topsoil.

4. Maintain separation of salvaged topsoil and subsoil throughout all construction activities.

5. Segregated topsoil may not be used for padding the pipe, constructing temporary slope breakers or trench plugs, improving or maintaining roads, or as a fill material.

6. Stabilize topsoil piles and minimize loss due to wind and water erosion with use of sediment barriers, mulch, temporary seeding, tackifiers, or functional equivalents, where necessary.

C. Drain Tiles

1. Mark locations of drain tiles damaged during construction.

2. Probe all drainage tile systems within the area of disturbance to check for damage.

3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.

4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. Irrigation

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. Road Crossings and Access Points

1. Maintain safe and accessible conditions at all road crossings and access points during construction.

2. If crushed stone access pads are used in residential or agricultural areas, place the stone on synthetic fabric to facilitate removal.

3. Minimize the use of tracked equipment on public roadways. Remove

any soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions. Repair any damages to roadway surfaces, shoulders, and bar ditches.

F. Temporary Erosion Control

Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers

   a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.

   b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing (closer spacing shall be used if necessary):

Slope (%)	Spacing
5-15%	300
>15-30	200
>30	100

   c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.

   d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive environmental resource areas.

2. Temporary Trench Plugs

   Temporary trench plugs are intended to segment a continuous open trench prior to backfill.

   a. Temporary trench plugs may consist of unexcavated portions of the trench, compacted subsoil, sandbags, or some functional equivalent.

   b. Position temporary trench plugs, as necessary, to reduce trenchline erosion and minimize the volume and velocity of trench water flow at the base of slopes.

3. Sediment Barriers

   Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources.

a. Sediment barriers may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.

b. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

4. Mulch

a. Apply mulch on all slopes (except in cultivated cropland) concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.

b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.

c. Mulch all disturbed upland areas (except cultivated cropland) before seeding if:

(1) final grading and installation of permanent erosion control measures will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or

(2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.

d. If mulching before seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.

e. If wood chips are used as mulch, do not use more than 1 ton/acre and add the equivalent of 11 lbs/acre available nitrogen (at least 50 percent of which is slow release).

f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.

g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies, except where the product is certified environmentally non-toxic by the appropriate state or federal agency or independent standards-setting organization.

h. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

V. Restoration

A. Cleanup

1. Commence cleanup operations immediately following backfill operations.

   Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (i.e., temporary slope breakers, sediment barriers, and mulch) until conditions allow completion of cleanup.

   If construction or restoration unexpectedly continues into the winter season when conditions could delay successful decompaction, topsoil replacement, or seeding until the following spring, file with the Secretary for the review and written approval of the Director, a winter construction plan (as specified in section III.I). This filing requirement does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F. and inspected and maintained as specified in sections II.B.12 through 14. When access is no longer required the travel lane must be removed and the right-of-way restored.

3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench shall be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.

4. Remove excess rock from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing.

5. Grade the construction right-of-way to restore pre-construction contours and leave the soil in the proper condition for planting.

6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.

7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. Permanent Erosion Control Devices

1. Trench Breakers

   a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.

   b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.

   c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.

   d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland. Install trench breakers at wetland boundaries, as specified in the Procedures. Do not install trench breakers within a wetland.

2. Permanent Slope breakers

   a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, stone, or some functional equivalent.

   b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, unless requested by the landowner, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

      In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

Slope (%)	Spacing (feet)
5-15	300
>15-30	200
>30	100

   c. Construct slope breakers to divert surface flow to a stable area

without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.

d. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

C. Soil Compaction Mitigation

1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.

2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil.

   If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

D. Revegetation

1. General

   a. The project sponsor is responsible for ensuring successful revegetation of soils disturbed by project-related activities, except as noted in section V.D.1.b.

   b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

   Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as practicable after application.

3. Seeding Requirements

   a. Prepare a seedbed in disturbed areas to a depth of 3 to 4 inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.

   b. Seed disturbed areas in accordance with written

recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency. Seeding is not required in cultivated croplands unless requested by the landowner.

c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in section IV.F and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Dormant seeding or temporary seeding of annual species may also be used, if necessary, to establish cover, as approved by the Environmental Inspector. Lawns may be seeded on a schedule established with the landowner.

d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a through V.D.3.c, ***or variances from this timing would be requested by Transco to FERC***.

e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.

f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).

g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker is preferred for seed application.

Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

VI. Off-Road Vehicle Control

To each owner or manager of forested lands, offer to install and maintain measures to control unauthorized vehicle access to the right-of-way. These measures may include:

A. signs;

B. fences with locking gates;

C. slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and

D. conifers or other appropriate trees or shrubs across the right-of-way.

VII. Post-Construction Activities and Reporting

A. Monitoring and Maintenance

1. Conduct follow-up inspections of all disturbed areas, as necessary, to determine the success of revegetation and address landowner concerns. At a minimum, conduct inspections after the first and second growing seasons.

2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful when upon visual survey, crop growth and vigor are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise.

   Continue revegetation efforts until revegetation is successful.

3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in agricultural areas until restoration is successful.

4. Restoration shall be considered successful if the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless otherwise approved by the landowner or land managing agency per section V.A.6), revegetation is successful, and proper drainage has been restored.

5. Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In no case shall routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the U.S. Fish and Wildlife Service.

6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and permanent access roads as necessary.

B. Reporting

1. The project sponsor shall maintain records that identify by milepost:

   a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;

   b. acreage treated;

   c. dates of backfilling and seeding;

   d. names of landowners requesting special seeding treatment and a description of the follow-up actions;

   e. the location of any subsurface drainage repairs or improvements

made during restoration; and

f. any problem areas and how they were addressed.

2. The project sponsor shall file with the Secretary quarterly activity reports documenting the results of follow-up inspections required by section VII.A.1; any problem areas, including those identified by the landowner; and corrective actions taken for at least 2 years following construction.

The requirement to file quarterly activity reports with the Secretary does not apply to projects constructed under the automatic authorization, prior notice, or advanced notice provisions in the FERC's regulations.

Transcontinental Gas Pipe Line Company, LLC

Wetland and Waterbody Construction and Mitigation Procedures

Southeastern Trail Project

Docket No. CP18-

April 2018

Table 1
Justifications for the Transco Proposed Modifications to the FERC Upland Erosion Control, Revegetation, and Maintenance Procedures

Section	FERC Version [a]	Transco Version [b]	Transco Justification [c]
I.A	(Entire Section I has been replaced)	***The intent of these Procedures is to minimize the extent and duration of Project-related disturbance of wetlands and waterbodies. Transcontinental Gas Pipe Line Company, LLC (Transco) has specified measures considered unnecessary, technically infeasible, or unsuitable due to local conditions, and has described any alternatives herein. Project-related impacts on non-wetland areas are addressed in the Transco Upland Erosion Control, Revegetation, and Maintenance Plan (Transco Plan).***	Provides an introduction to the Transco Procedures.
I.B.1	a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of construction; b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of construction; and c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of construction.	a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of ***crossing***; b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of ***crossing***; and c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of ***crossing***.	Clarifies that the width of a given crossing is determined at the time that the features is crossed rather than being determined for the duration of construction.
IV.A.1.c	Fuel trucks transporting fuel to on-site equipment travel only on approved access roads;	Fuel trucks transporting fuel to on-site equipment travel on approved access roads ***or on the construction right-of-way***;	Fuel trucks may need to travel along the construction ROW to deliver fuel due to the distance between access points for the Project. An SPCC plan has been developed for the Project and will be implemented during construction.
IV.A.1.d	All equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary.	All equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary ***with the exception of proposed dry stream crossings using the dam and pump crossing method. Refueling of pumps will be necessary within 100 feet of the associated waterbody to be crossed***.	Refueling of pumps will be necessary within 100 feet of the associated waterbody to be crossed using the dam and pump crossing method. Secondary containment will be provided for overnight. An SPCC plan has been developed for the Project and will be implemented during construction.

Table 1
Justifications for the Transco Proposed Modifications to the FERC Upland Erosion Control, Revegetation, and Maintenance Procedures

Section	FERC Version [a]	Transco Version [b]	Transco Justification [c]
V.B.1	Temporary Erosion and Sediment Control	Temporary Erosion and Sediment Control **for Waterbodies**	Clarifying title in this section
V.B.2.a	Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.	Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge. ***Water's edge shall be considered the location where vegetation has been wrested by normal stream flow or wave action from the banks.***	Clarifies definition of water's edge.
V.B.2.b	The project sponsor shall file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from the water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the conditions that will not permit a 50-foot setback and measures to ensure the waterbody is adequately protected.	The project sponsor shall file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from the water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the conditions that will not permit a 50-foot setback and measures to ensure the waterbody is adequately protected. ***Transco is proposing to locate extra work area within 50 feet of the waterbodies shown in the table that follows. Justification is provided for each location.***	Provides proposed justification for additional workspace closer than 50-ft from the water's edge of waterbodies listed in the accompanying table.
V.B.4.a	All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least 10 feet from the water's edge, or in additional extra work areas as described in section V.B.2.	All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least ***50*** feet from the water's edge, or in additional extra work areas as described in section V.B.2. ***Water's edge shall be considered the location where vegetation has been wrested by normal stream flow or wave action from the banks.***	Clarifies definition of water's edge.
V.B.10	Temporary Erosion and Sediment Control	Temporary Erosion and Sediment Control ***for Waterbodies***	Clarifying title in this section

Table 1
Justifications for the Transco Proposed Modifications to the FERC Upland Erosion Control, Revegetation, and Maintenance Procedures

Section	FERC Version [a]	Transco Version [b]	Transco Justification [c]
V.C.8	Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody. In addition, install sediment barriers as outlined in the Plan.	Install a permanent slope breaker across the construction right-of-way ***at all waterbody crossings***. In addition, install sediment barriers as outlined in the Plan.	The Transco version replaces the FERC version with more conservative measure.
V.D.1	Limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic corrosion/leak surveys, a corridor	Limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the ***waterbody's mean high water mark (point where vegetation has been wrested by normal stream flow or wave action from the banks)***, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic corrosion/leak surveys, a corridor	Clarifies definition of water's edge.
VI.B.1.b	The project sponsor shall file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from wetland boundaries, except where adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the site-specific conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected.	The project sponsor shall file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from wetland boundaries, except where adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the site-specific conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected. **Transco is proposing to locate extra work area within 50 feet of the wetlands shown in the table that follows. Justification is provided for each location.**	Provides proposed justification for additional workspace closer than 50-ft from the edge of wetlands listed in the accompanying table.
VI.B.3	Temporary Sediment Control	Temporary Sediment Control ***for Wetlands***	Clarifying title in this section

a – May 2013 FERC Wetland and Waterbody Construction and Mitigation Procedures
b – Changes indicated in ***bold italic*** text
c - Justification stating rationale for each proposed modification; Modifications are required to provide equal or greater measures than those provided in the FERC Procedures

Contents

I. Applicability

A. ***The intent of these Procedures is to minimize the extent and duration of Project-related disturbance of wetlands and waterbodies. Transcontinental Gas Pipe Line Company, LLC (Transco) has specified measures considered unnecessary, technically infeasible, or unsuitable due to local conditions, and has described any alternatives herein. Project-related impacts on non-wetland areas are addressed in the Transco Upland Erosion Control, Revegetation, and Maintenance Plan (Transco Plan).***

Once a project is authorized, project sponsors can request further changes as variances to the measures in these Procedures (or the applicant's approved procedures). The Director of the Office of Energy Projects (Director) will consider approval of variances upon the project sponsor's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;
2. is necessary because a portion of these Procedures is infeasible or unworkable based on project-specific conditions; or
3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Sponsors of projects planned for construction under the automatic authorization provisions in the FERC's regulations must receive written approval for any variances in advance of construction.

Project-related impacts on non-wetland areas are addressed in the staff's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

B. Definitions

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:
   a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of ***crossing***;
   b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of ***crossing***; and
   c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of ***crossing***.
2. "Wetland" includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current federal methodology for identifying and delineating wetlands.

II. Preconstruction Filing

A. The following information must be filed with the Secretary of the FERC (Secretary) prior to the beginning of construction, for the review and written approval by the Director:

1. Site-specific justifications for extra work areas that would be closer than 50 feet from a waterbody or wetland; and
2. Site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands.

B. The following information must be filed with the Secretary prior to the beginning of construction. These filing requirements do not apply to projects constructed under the automatic authorization provisions in the FERC's regulations:

1. Spill Prevention and Response Procedures specified in section IV.A;
2. A schedule identifying when trenching or blasting will occur within each waterbody greater than 10 feet wide, within any designated coldwater fishery, and within any waterbody identified as habitat for federally-listed threatened or endangered species. The project sponsor will revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice;
3. Plans for horizontal directional drills (HDD) under wetlands or waterbodies, specified in section V.B.6.d;
4. Site-specific plans for major waterbody crossings, described in section V.B.9;
5. A wetland delineation report as described in section VI.A.1, if applicable; and
6. The hydrostatic testing information specified in section VII.B.3.

III. Environmental Inspections

A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the project area is required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.

B. The Environmental Inspector's responsibilities are outlined in the Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

IV. Preconstruction Planning

A. The project sponsor shall develop project-specific Spill Prevention and Response Procedures that meet applicable requirements of state and federal agencies. A copy must be filed with the Secretary prior to construction and made available in the field on each construction spread. This filing requirement does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

1. It shall be the responsibility of the project sponsor and its contractors to structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. The project sponsor and its contractors must, at a minimum, ensure that:

   a. all employees handling fuels and other hazardous materials are properly trained;

   b. all equipment is in good operating order and inspected on a regular basis;

   c. Fuel trucks transporting fuel to on-site equipment travel on approved access roads ***or on the construction right-of-way***;

   d. all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary ***with the exception of proposed dry stream crossings using the dam and pump crossing method. Refueling of pumps will be necessary within 100 feet of the associated waterbody to be crossed***. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;

   e. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas;

   f. concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and the project sponsor and its contractors have taken appropriate steps (including

secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;

g. pumps operating within 100 feet of a waterbody or wetland boundary utilize appropriate secondary containment systems to prevent spills; and

h. bulk storage of hazardous materials, including chemicals, fuels, and lubricating oils have appropriate secondary containment systems to prevent spills.

2. The project sponsor and its contractors must structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, the project sponsor and its contractors must:

a. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills and unanticipated discoveries of contamination;

b. ensure that each construction crew has on hand sufficient tools and material to stop leaks;

c. know the contact names and telephone numbers for all local, state, and federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and

d. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

B. Agency Coordination

The project sponsor must coordinate with the appropriate local, state, and federal agencies as outlined in these Procedures and in the FERC's Orders.

V. Waterbody Crossings

A. Notification Procedures and Permits

1. Apply to the U.S. Army Corps of Engineers (COE), or its delegated agency, for the appropriate wetland and waterbody crossing permits.

2. Provide written notification to authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in the waterbody,

or as otherwise specified by that authority.

3. Apply for state-issued waterbody crossing permits and obtain individual or generic section 401 water quality certification or waiver.

4. Notify appropriate federal and state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in applicable permits.

B. Installation

1. Time Window for Construction ***for Waterbodies***

   Unless expressly permitted or further restricted by the appropriate federal or state agency in writing on a site-specific basis, instream work, except that required to install or remove equipment bridges, must occur during the following time windows:

   a. coldwater fisheries - June 1 through September 30; and

   b. coolwater and warmwater fisheries - June 1 through November 30.

2. Extra Work Areas

   a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge. ***Water's edge shall be considered the location where vegetation has been wrested by normal stream flow or wave action from the banks.***

   b. The project sponsor shall file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from the water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the conditions that will not permit a 50-foot setback and measures to ensure the waterbody is adequately protected. **Transco is proposing to locate extra work area within 50 feet of the waterbodies shown in the table that follows. Justification is provided for each location.**

Extra Workspace (Additional Temporary Workspaces) Located Within 50 feet of a Waterbody					
Facility / ATWS	**MP**	**Waterbody ID**	**Distance from ATWS (feet)**	**Waterbody Type**	**Justification**
Manassas Loop					
FQ-001	1568.1	WBFQ01	6	Pond	Staging Area / Fabrication
FQ-001	1568.1	SFQ02	0	Ephemeral	Staging Area / Fabrication
FQ-001	1568.1	SFQ03	0	Perennial	Staging Area / Fabrication
FQ-001	1568.1	SFQ04	40	Perennial	Staging Area / Fabrication
FQ-002	1568.1	WBFQ01	22	Pond	Staging Area / Fabrication
FQ-002	1568.1	SFQ03	9	Perennial	Staging Area / Fabrication
FQ-003	1568.2	SFQ04	33	Ephemeral	Staging Area / Fabrication
FQ-004	1568.2	SFQ04	39	Ephemeral	Bore Spoil
FQ-017	1569.1	SFQ08	44	Ephemeral	Staging Area / Spread Turnaround
FQ-018	1569.1	SFQ08	49	Ephemeral	Road Crossing
FQ-020	1569.2	WBFQ03	36	Pond	Topsoil Segregation
FQ-028	1569.8	SFQ16	21	Perennial	Waterbody Crossing
FQ-029	1569.8	SFQ16	23	Perennial	Waterbody Crossing
FQ-030	1569.8	SFQ16	4	Perennial	Waterbody Crossing
FQ-038	1570.6	SFQ23	34	Ephemeral	Waterbody Crossing
FQ-039	1570.6	SFQ23	11	Ephemeral	Side Slope
FQ-040	1570.6	SFQ23	28	Ephemeral	Side Slope
FQ-051	1572.1	SFQ11	39	Ephemeral	Waterbody Crossing
FQ-052	1572.1	SFQ11	43	Ephemeral	Side Slope
FQ-062	1572.7	SFQ14	42	Perennial	Point of Inflection
PW-085	1574.7	SPW05	33	Perennial	Spoil Storage
PW-087	1574.7	SPW05	25	Perennial	Spoil Storage
PW-088	1574.7	SPW06	45	Perennial	Drag Section
PW-101	1575.9	SPW08	0	Perennial	Staging Area / Fabrication / Set-Up

Side Slope: Waterbody / wetland located at the base of a steep slope where suitable areas for spoil storage are limited or not available, or in areas with significant side slopes where additional spoil storage is required.

Waterbody Crossing: Identified wetlands are associated with a waterbody crossing. As outlined in greater detail in the Summary of Modification section at the beginning of the Transco Procedures, extra workspace is required for additional trench width / bank cut-bank due to additional depth of trench under waterbody. This leads to increased width of ROW for fabrication of bent-pipe section and spoil storage at waterbody crossings.

Road Crossing: Identified waterbody/wetlands are associated with a road crossing. The extra workspace is required for added depth of the bore under the roadway. This leads to increased width of ROW for fabrication of bore pipe section and spoils storage at road crossings.

c. Limit the size of extra work areas to the minimum needed to construct the waterbody crossing.

3. General Crossing Procedures

a. Comply with the COE, or its delegated agency, permit terms and conditions.

b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing

conditions permit.

c. Where pipelines parallel a waterbody, maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way, except where maintaining this offset will result in greater environmental impact.

d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.

e. Maintain adequate waterbody flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.

f. Waterbody buffers (e.g., extra work area setbacks, refueling restrictions) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

g. Crossing of waterbodies when they are dry or frozen and not flowing may proceed using standard upland construction techniques in accordance with the Plan, provided that the Environmental Inspector verifies that water is unlikely to flow between initial disturbance and final stabilization of the feature. In the event of perceptible flow, the project sponsor must comply with all applicable Procedure requirements for "waterbodies" as defined in section I.B.1.

4. Spoil Pile Placement and Control

a. All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least ***50*** feet from the water's edge,or in additional extra work areas as described in section V.B.2. ***Water's edge shall be considered the location where vegetation has been wrested by normal stream flow or wave action from the banks.***

b. Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody

5. Equipment Bridges

a. Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment.

b. Construct and maintain equipment bridges to allow unrestricted flow and to prevent soil from entering the waterbody. Examples of such bridges include:

(1) equipment pads and culvert(s);

(2) equipment pads or railroad car bridges without culverts;

(3) clean rock fill and culvert(s); and

(4) flexi-float or portable bridges.

Additional options for equipment bridges may be utilized that achieve the performance objectives noted above. Do not use soil to construct or stabilize equipment bridges.

c. Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts.

d. Design and maintain equipment bridges to prevent soil from entering the waterbody.

e. Remove temporary equipment bridges as soon as practicable after permanent seeding.

f. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove temporary equipment bridges as soon as practicable after final cleanup.

g. Obtain any necessary approval from the COE, or the appropriate state agency for permanent bridges.

6. Dry-Ditch Crossing Methods

a. Unless approved otherwise by the appropriate federal or state agency, install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are state-designated as either coldwater or significant coolwater or warmwater fisheries, or federally- designated as critical habitat.

b. Dam and Pump

(1) The dam-and-pump method may be used without prior approval for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage.

(2) Implementation of the dam-and-pump crossing method must meet the following performance criteria:

(i) use sufficient pumps, including on-site backup

pumps, to maintain downstream flows;

(ii) construct dams with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);

(iii) screen pump intakes to minimize entrainment of fish;

(iv) prevent streambed scour at pump discharge; and

(v) continuously monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.

c. Flume Crossing

The flume crossing method requires implementation of the following steps:

(1) install flume pipe after blasting (if necessary), but before any trenching;

(2) use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required to achieve an effective seal);

(3) properly align flume pipe(s) to prevent bank erosion and streambed scour;

(4) do not remove flume pipe during trenching, pipelaying, or backfilling activities, or initial streambed restoration efforts; and

(5) remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

d. Horizontal Directional Drill

For each waterbody or wetland that would be crossed using the HDD method, file with the Secretary for the review and written approval by the Director, a plan that includes:

(1) site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;

(2) justification that disturbed areas are limited to the minimum needed to construct the crossing;

(3) identification of any aboveground disturbance or

clearing between the HDD entry and exit workspaces during construction;

(4) a description of how an inadvertent release of drilling mud would be contained and cleaned up; and

(5) a contingency plan for crossing the waterbody or wetland in the event the HDD is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

The requirement to file HDD plans does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

7. Crossings of Minor Waterbodies

Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. except for blasting and other rock breaking measures, complete instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) within 24 hours. Streambanks and unconsolidated streambeds may require additional restoration after this period;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification or protected status (e.g., agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in section V.B.5.

8. Crossings of Intermediate Waterbodies

Where a dry-ditch crossing is not required, intermediate waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. all other construction equipment must cross on an equipment bridge as specified in section V.B.5.

9. Crossings of Major Waterbodies

Before construction, the project sponsor shall file with the Secretary for

the review and written approval by the Director a detailed, site-specific construction plan and scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing (the scaled drawings are not required for any offshore portions of pipeline projects). This plan must be developed in consultation with the appropriate state and federal agencies and shall include extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues. The requirement to file major waterbody crossing plans does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations. The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

10. Temporary Erosion and Sediment Control ***for Waterbodies***

Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately after initial disturbance of the waterbody or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan; however, the following specific measures must be implemented at stream crossings:

a. install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. Removable sediment barriers (or driveable berms) must be installed across the travel lane. These removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent;

b. where waterbodies are adjacent to the construction right-of-way and the right-of-way slopes toward the waterbody, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the waterbody; and

c. use temporary trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

11. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any waterbody. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. Restoration

1. Use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries.

2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing instream construction activities. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.

3. Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.

4. Install erosion control fabric or a functional equivalent on waterbody banks at the time of final bank recontouring. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

5. Application of riprap for bank stabilization must comply with COE, or its delegated agency, permit terms and conditions.

6. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric.

7. Revegetate disturbed riparian areas with native species of conservation grasses, legumes, and woody species, similar in density to adjacent undisturbed lands.

8. Install a permanent slope breaker across the construction right-of-way ***at all waterbody crossings***. In addition, install sediment barriers as outlined in the Plan.

   In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

9. Sections V.C.3 through V.C.7 above also apply to those perennial or intermittent streams not flowing at the time of construction.

D. Post-Construction Maintenance

1. Limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the ***waterbody's mean high water mark (point where vegetation has been wrested by normal stream flow or wave action from the banks)***, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10

feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees that are located within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in riparian areas that are between HDD entry and exit points.

2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.

3. Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of riparian areas.

VI. Wetland Crossings

A. General

1. The project sponsor shall conduct a wetland delineation using the current federal methodology and file a wetland delineation report with the Secretary before construction. The requirement to file a wetland delineation report does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

   This report shall identify:

   a. by milepost all wetlands that would be affected;

   b. the National Wetlands Inventory (NWI) classification for each wetland;

   c. the crossing length of each wetland in feet; and

   d. the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

   The requirements outlined in this section do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoiling requirements, apply to these agricultural wetlands.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.

3. Limit the width of the construction right-of-way to 75 feet or less. Prior

written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 feet. Early in the planning process the project sponsor is encouraged to identify site-specific areas where excessively wide trenches could occur and/or where spoil piles could be difficult to maintain because existing soils lack adequate unconfined compressive strength.

4. Wetland boundaries and buffers must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

5. Implement the measures of sections V and VI in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all measures of sections V and VI cannot be met, the project sponsor must file with the Secretary a site-specific crossing plan for review and written approval by the Director before construction. This crossing plan shall address at a minimum:

   a. spoil control;

   b. equipment bridges;

   c. restoration of waterbody banks and wetland hydrology;

   d. timing of the waterbody crossing;

   e. method of crossing; and

   f. size and location of all extra work areas.

6. No aboveground facilities will be constructed in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

B. Installation

1. Extra Work Areas and Access Roads

   a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.

   b. The project sponsor shall file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from wetland boundaries, except where adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the site-specific conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected. **Transco is proposing to**

locate extra work area within 50 feet of the wetlands shown in the table that follows. Justification is provided for each location.

Extra Workspace (Additional Temporary Workspace) Located Within 50 feet of a Wetland					
Facility / ATWS	**MP**	**Wetland ID**	**Distance from ATWS (feet)**	**Wetland Type**	**Justification**
Manassas Loop					
FQ-001	1568.1	WFQ01	10	Palustrine Emergent	Staging Area / Fabrication
FQ-001	1568.1	WFQ02	8	Palustrine Forested	Staging Area / Fabrication
FQ-002	1568.1	WFQ01	6	Palustrine Emergent	Staging Area / Fabrication
FQ-028	1569.8	WFQ14	32	Palustrine Forested	Waterbody Crossing
FQ-029	1569.8	WFQ12	28	Palustrine Emergent	Waterbody Crossing
FQ-032	1569.9	WFQ16	48	Palustrine Emergent	Topsoil Segregation
FQ-033	1570.1	WFQ17	48	Palustrine Forested	Topsoil Segregation
FQ-034	1570.1	WFQ19	47	Palustrine Emergent	Topsoil Segregation
FQ-044	1571.1	WFQ08	47	Palustrine Forested	Drag Section
PW-089	1574.8	WPW05	35	Palustrine Emergent	Side Slope / Waterbody Crossing
PW-096	1575.6	WPW06	48	Palustrine Forested	Side Slope / Waterbody Crossing
PW-101	1575.9	WPW06	4	Palustrine Forested	Staging Area / Fabrication / Set-Up
PW-101	1575.9	WPW07	35	Palustrine Emergent	Staging Area / Fabrication / Set-Up

Steep Slope/Side Slope: Waterbody / wetland located at the base of a steep slope where suitable areas for spoil storage are limited or not available, or in areas with significant side slopes where additional spoil storage is required.

Waterbody Crossing: Identified wetlands are associated with a waterbody crossing. As outlined in greater detail in the Summary of Modification section at the beginning of the Transco Procedures, extra workspace is required for additional trench width / bank cut-bank due to additional depth of trench under waterbody. This leads to increased width of ROW for fabrication of bent-pipe section and spoil storage at waterbody crossings.

Road Crossing: Identified waterbody/wetlands are associated with a road crossing. The extra workspace is required for added depth of the bore under the roadway. This leads to increased width of ROW for fabrication of bore pipe section and spoils storage at road crossings.

c. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right- of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats).

In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.

2. Crossing Procedures

a. Comply with COE, or its delegated agency, permit terms and conditions.

b. Assemble the pipeline in an upland area unless the wetland

is dry enough to adequately support skids and pipe.

c. Use "push-pull" or "float" techniques to place the pipe in the trench where water and other site conditions allow.

d. Minimize the length of time that topsoil is segregated and the trench is open. Do not trench the wetland until the pipeline is assembled and ready for lowering in.

e. Limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.

f. Cut vegetation just above ground level, leaving existing root systems in place, and remove it from the wetland for disposal.

The project sponsor can burn woody debris in wetlands, if approved by the COE and in accordance with state and local regulations, ensuring that all remaining woody debris is removed for disposal.

g. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction right-of-way in wetlands unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way.

h. Segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated. Immediately after backfilling is complete, restore the segregated topsoil to its original location.

i. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to support equipment on the construction right-of-way.

j. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats.

k. Remove all project-related material used to support equipment on the construction right-of-way upon completion of construction

3. Temporary Sediment Control ***for Wetlands***

Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately after initial disturbance of the wetland or adjacent upland. Sediment barriers must be properly maintained throughout construction

and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in section VI.B.3.c, maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

a. Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland.

b. Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland.

c. Install sediment barriers along the edge of the construction right-of- way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup.

4. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any wetland. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. Restoration

1. Where the pipeline trench may drain a wetland, construct trench breakers at the wetland boundaries and/or seal the trench bottom as necessary to maintain the original wetland hydrology.

2. Restore pre-construction wetland contours to maintain the original wetland hydrology.

3. For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers as outlined in the Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

4. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate federal or state agency.

5. Consult with the appropriate federal or state agencies to develop a project- specific wetland restoration plan. The restoration plan shall include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of invasive species and noxious weeds (e.g., purple loosestrife and *phragmites*), and monitoring the success of the revegetation and weed control efforts. Provide this plan to the FERC staff upon request.

6. Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present).

7. Ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species.

8. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section VII.A.4 of the Plan.

D. Post-Construction Maintenance and Reporting

1. Do not conduct routine vegetation mowing or clearing over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees within 15 feet of the pipeline with roots that could compromise the integrity of pipeline coating may be selectively cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in wetlands that are between HDD entry and exit points.

2. Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate federal or state agency.

3. Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of wetland areas.

4. Monitor and record the success of wetland revegetation annually until wetland revegetation is successful.

5. Wetland revegetation shall be considered successful if all of the following criteria are satisfied:

   a. the affected wetland satisfies the current federal definition for a wetland (i.e., soils, hydrology, and vegetation);

   b. vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by

construction;

c. if natural rather than active revegetation was used, the plant species composition is consistent with early successional wetland plant communities in the affected ecoregion; and

d. invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction.

6. Within 3 years after construction, file a report with the Secretary identifying the status of the wetland revegetation efforts and documenting success as defined in section VI.D.5, above. The requirement to file wetland restoration reports with the Secretary does not apply to projects constructed under the automatic authorization, prior notice, or advance notice provisions in the FERC's regulations.

   For any wetland where revegetation is not successful at the end of 3 years after construction, develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate wetlands. Continue revegetation efforts and file a report annually documenting progress in these wetlands until wetland revegetation is successful.

VII. Hydrostatic Testing

A. Notification Procedures and Permits

1. Apply for state-issued water withdrawal permits, as required.
2. Apply for National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, as required.
3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

B. General

1. Perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.
2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetland, address secondary containment and refueling of these pumps in the project's Spill Prevention and Response Procedures.
3. The project sponsor shall file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location. This filing requirement does not apply to projects constructed under the automatic

authorization provisions of the FERC's regulations.

C. Intake Source and Rate

1. Screen the intake hose to minimize the potential for entrainment of fish.
2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and/or local permitting agencies grant written permission.
3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.
4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

D. Discharge Location, Method, and Rate

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow.
2. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and local permitting agencies grant written permission.

DOCUMENT NAME	SHEET NUMBER	ROW WIDTH (FT)	DESCRIPTION	REVISION	DATE
F-MANA-D-XS-01	01		COVERSHEET	0	04/04/2018
F-MANA-D-XS-01	02		TABLE OF CONTENTS	0	04/04/2018
F-MANA-D-XS-01	03	110	NO TOPSOIL STRIPPING- ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	0	04/04/2018
F-MANA-D-XS-01	04	125-210	NO TOPSOIL STRIPPING- ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	0	04/04/2018
F-MANA-D-XS-01	05	130-140	NO TOPSOIL STRIPPING- ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON SPOIL SIDE	0	04/04/2018
F-MANA-D-XS-01	06	160-220	NO TOPSOIL STRIPPING- ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES	0	04/04/2018
F-MANA-D-XS-01	07	140-170	TOPSOIL STRIPPING- ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	0	04/04/2018
F-MANA-D-XS-01	08	170-200	TOPSOIL STRIPPING- ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES	0	04/04/2018
F-MANA-D-XS-01	09	75-100	WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	0	04/04/2018
F-MANA-D-XS-01	10		CROSS-SECTION TYPICAL MILEPOST LISTING	0	04/04/2018
F-MANA-D-XS-01	11		CROSS-SECTION TYPICAL MILEPOST LISTING	0	04/04/2018
F-MANA-D-XS-01	12		CROSS-SECTION TYPICAL MILEPOST LISTING	0	04/04/2018
F-MANA-D-XS-01	13		CROSS-SECTION TYPICAL MILEPOST LISTING	0	04/04/2018

WOOD GROUP USA, INC.

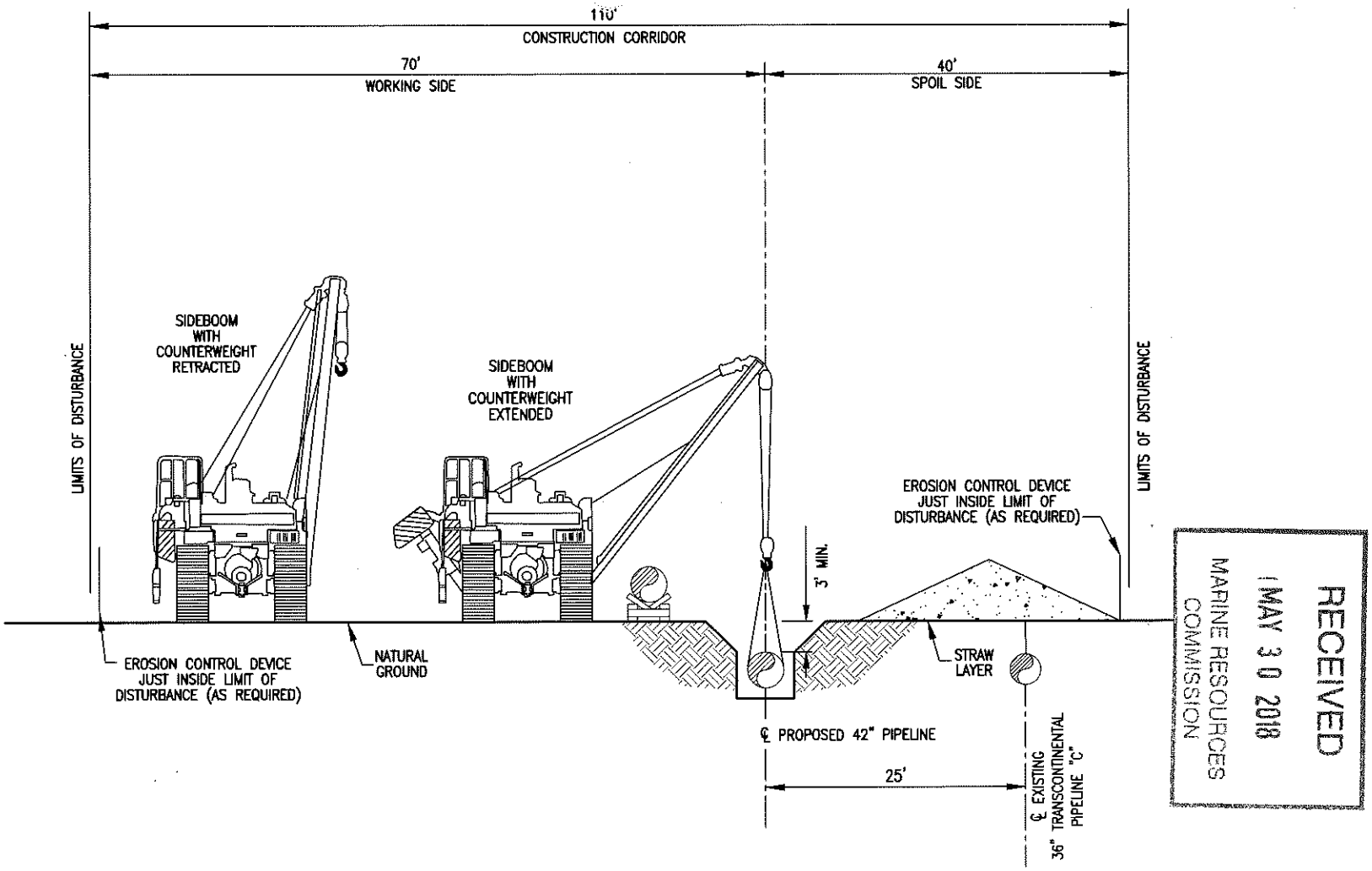
DRAWING NO.	REFERENCE TITLE

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
0	04/04/18	DP	ISSUED FOR FERC FILING	1199779	W.	EL

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

DRAWN BY: FH	DATE: 01/09/18	ISSUED FOR BID:	SCALE: NTS
CHECKED BY: W.	DATE: 01/09/18	ISSUED FOR CONSTRUCTION:	REV: 0
APPROVED BY: EL	DATE: 01/09/18	DRAWING NUMBER: F-MANA-D-XS-01	SHEET 02 OF 13
WO: 1199779	ROUTE I.D. 101-2/26/18	12:13pm 3/27/2018 Don.Poulson K:\MAPPING\VA\MAIN\LOOP\1568_17\FERC\FERC\Misc\F-MANA-D-XS-01-INDEX.dwg	



RECEIVED
MAY 30 2018
MARINE RESOURCES COMMISSION

TYPICAL CROSS SECTION FOR 42" PIPELINE
NO TOPSOIL STRIPPING – ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE

DRAWING NO.	REFERENCE TITLE

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
0	04/04/18	DP	ISSUED FOR FERC FILING	1199779	W.	EL

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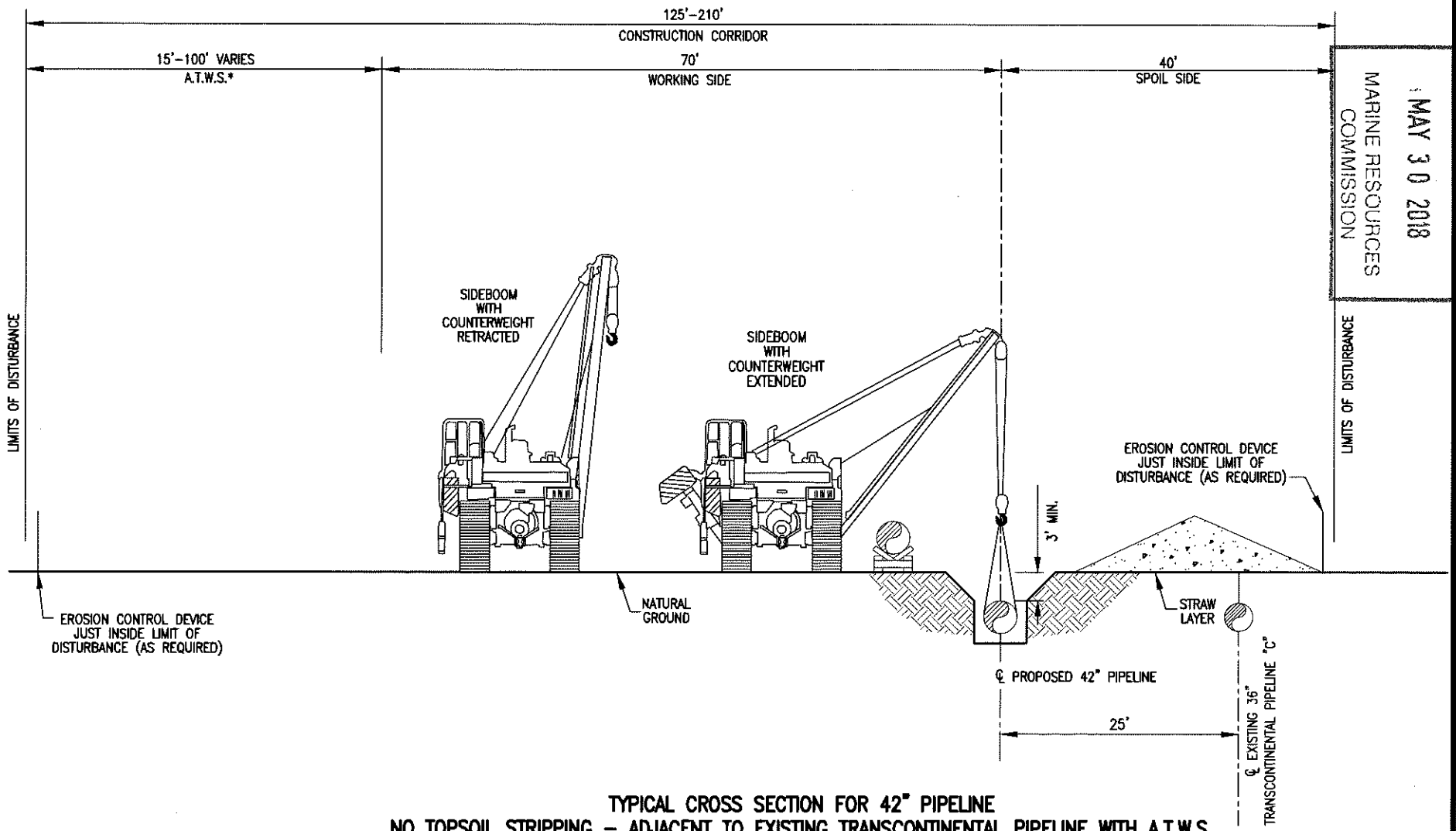
APPROVED BY: EL	DATE: 01/09/18	DRAWING NUMBER: F-MANA-D-XS-01	SHEET 03 OF 13
WO: 1199779	ROUTE I.D. 101-2/26/18	12:14pm 3/27/2018 Don.Poulson K:\MAPPING\VA\MAIN\LOOP\156B_17\FERC\FERCX\Misc\F-MANA-D-XS-01.dwg	

WOOD GROUP USA, INC.



TYPICAL CROSS SECTION FOR 42" PIPELINE
NO TOPSOIL STRIPPING – ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.

* A.T.W.S. FOR SPOILS RELATED TO: P.I., SIDE SLOPE, CROSSOVER, STREAM CROSSING, ROAD CROSSING, WETLAND CROSSING AND/OR DRAG SECTION.

DRAWING NO.	REFERENCE TITLE

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

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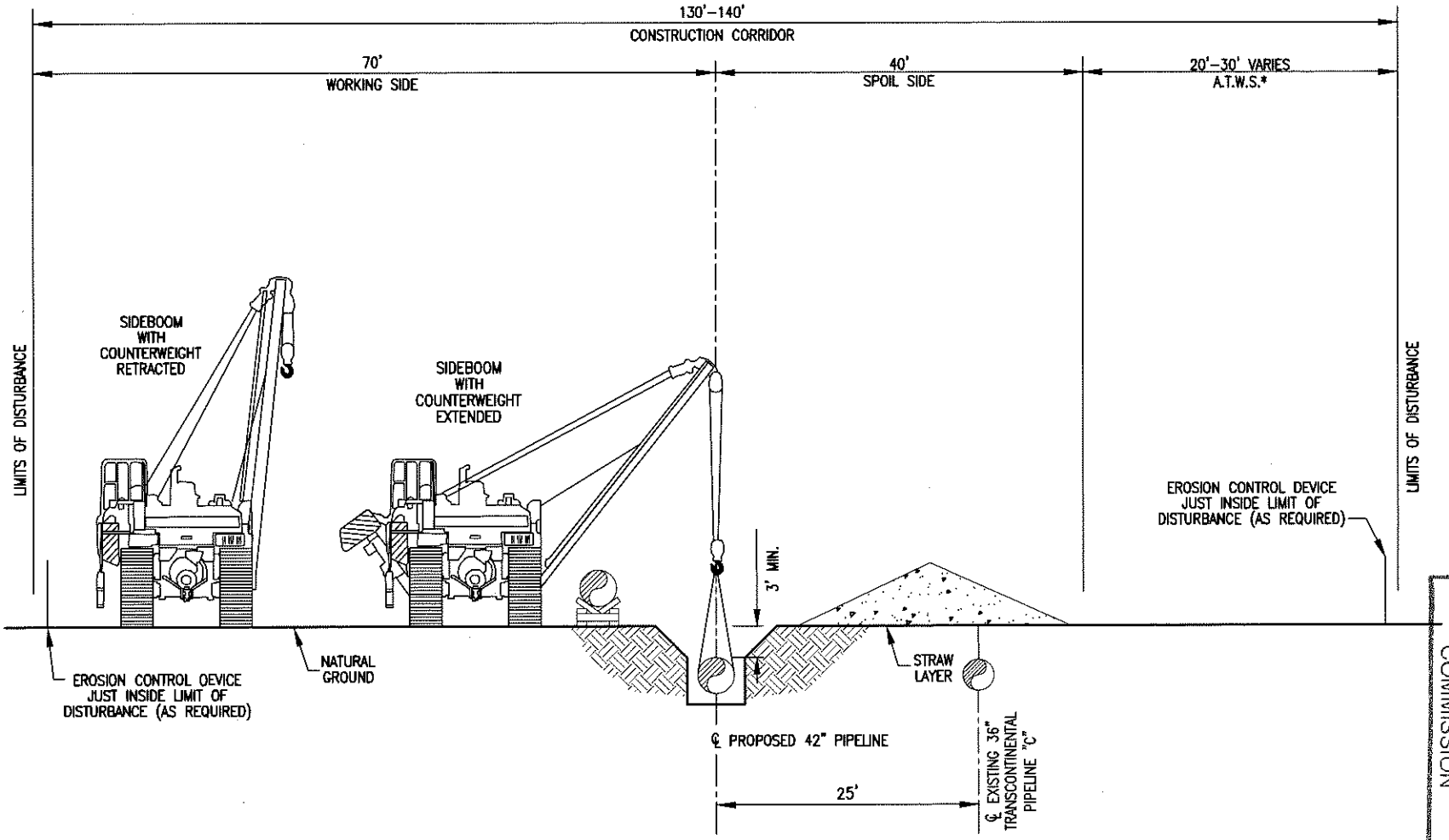
WO: 1199779	ROUTE I.D. 101-2/26/18	12:15pm 3/27/2018 Dan.Poulson K:\MAPPING\VA\MAIN\LOOP\1568_17\FERC\FERCX\Misc\F-MANA-D-XS-01.dwg	

WOOD GROUP USA, INC.



RECEIVED
MAY 30 2018
MARINE RESOURCES COMMISSION

TYPICAL CROSS SECTION FOR 42" PIPELINE
NO TOPSOIL STRIPPING – ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON SPOIL SIDE

* A.T.W.S. FOR SPOILS RELATED TO: P.I., SIDE SLOPE, CROSSOVER, STREAM CROSSING, ROAD CROSSING, WETLAND CROSSING AND/OR ORAG SECTION.

DRAWING NO.	REFERENCE TITLE

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

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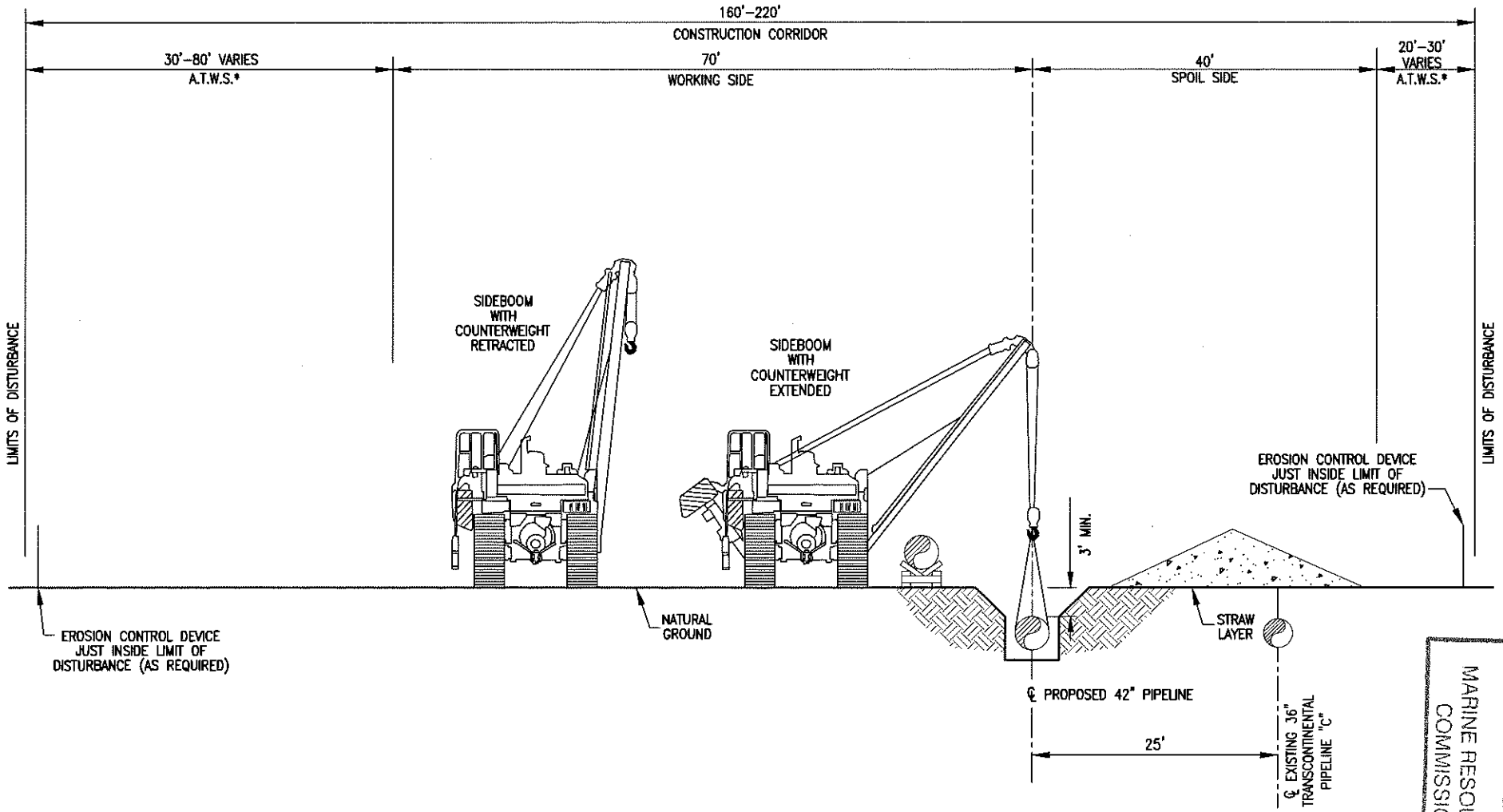
WOOD GROUP USA, INC.



TYPICAL CROSS SECTION FOR 42" PIPELINE
NO TOPSOIL STRIPPING – ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES

* A.T.W.S. FOR SPOILS RELATED TO: P.I., SIDE SLOPE, STREAM CROSSING, ROAD CROSSING AND/OR DRAG SECTION.

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TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

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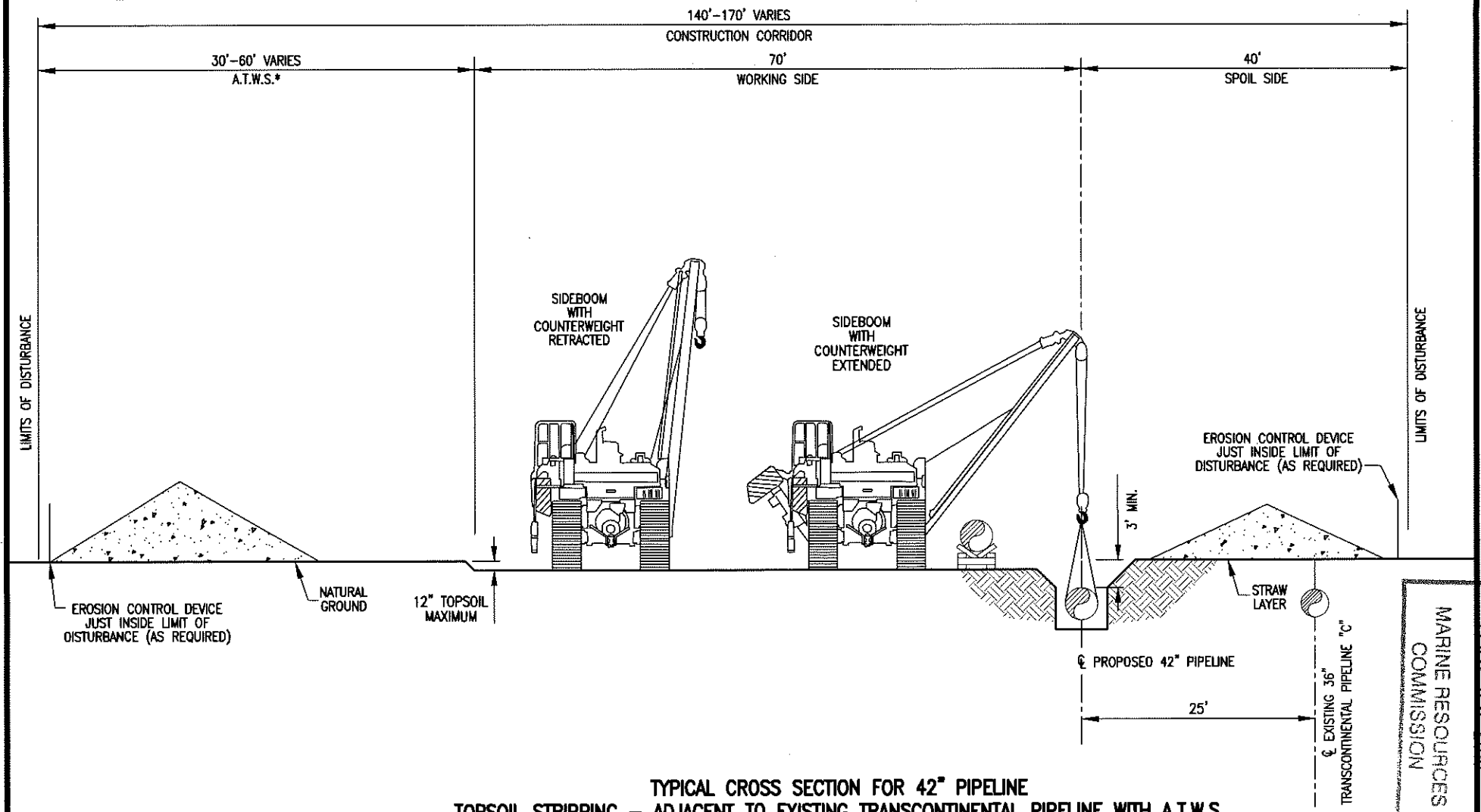
WO: 1199779	ROUTE I.D. 101-2/26/18	12:17pm 3/27/2018 Dan.Paulson K:\MAPPING\VA\MANA\LOOP\1568_17\FERC\FERCX\Misc\F-MANA-D-XS-01.dwg	

WOOD GROUP USA, INC.



TYPICAL CROSS SECTION FOR 42" PIPELINE
TOPSOIL STRIPPING – ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.

* A.T.W.S. FOR SPOILS RELATED TO: P.I., SIDE SLOPE, STREAM CROSSING, ROAD CROSSING, TOPSOIL SEGREGATION AND/OR DRAG SECTION.

DRAWING NO.	REFERENCE TITLE

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

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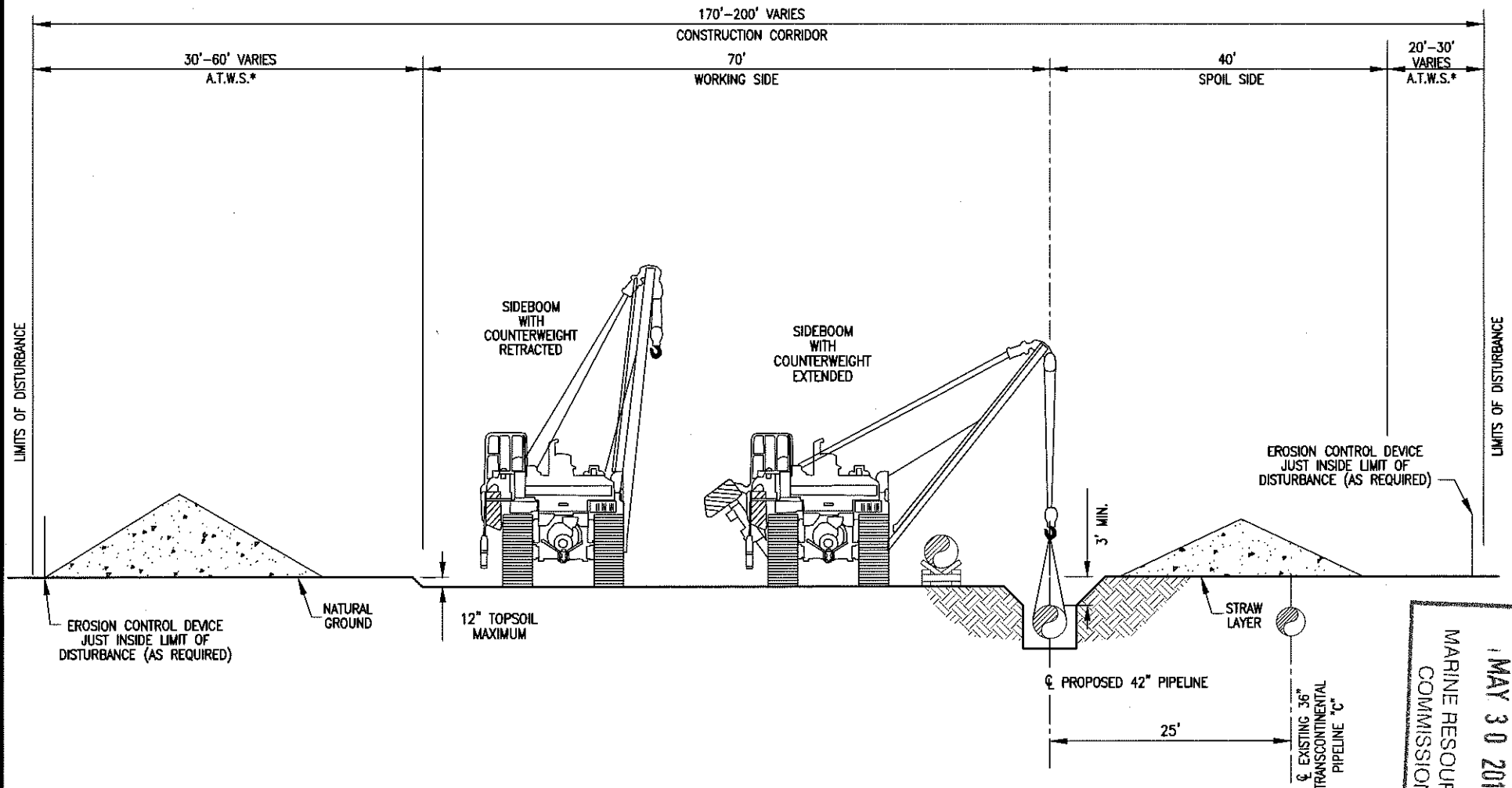
APPROVED BY: EL	DATE: 01/09/18	DRAWING NUMBER: F-MANA-D-XS-01	SHEET 07 OF 13
WO: 1199779	ROUTE I.D. 101-2/26/18	12:18pm 3/27/2018 Don.Poulson K:\MAPPING\VA\MAIN\LOOP\1568_17\FERC\FERCX\Misc\F-MANA-D-XS-01.dwg	

WOOD GROUP USA, INC.



TYPICAL CROSS SECTION FOR 42" PIPELINE
TOPSOIL STRIPPING – ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES

* A.T.W.S. FOR SPOILS RELATED TO: P.I., SIDE SLOPE, STREAM CROSSING, TOPSOIL SEGREGATION AND/OR DRAG SECTION.

DRAWING NO.	REFERENCE TITLE

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WOOD GROUP USA, INC.

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

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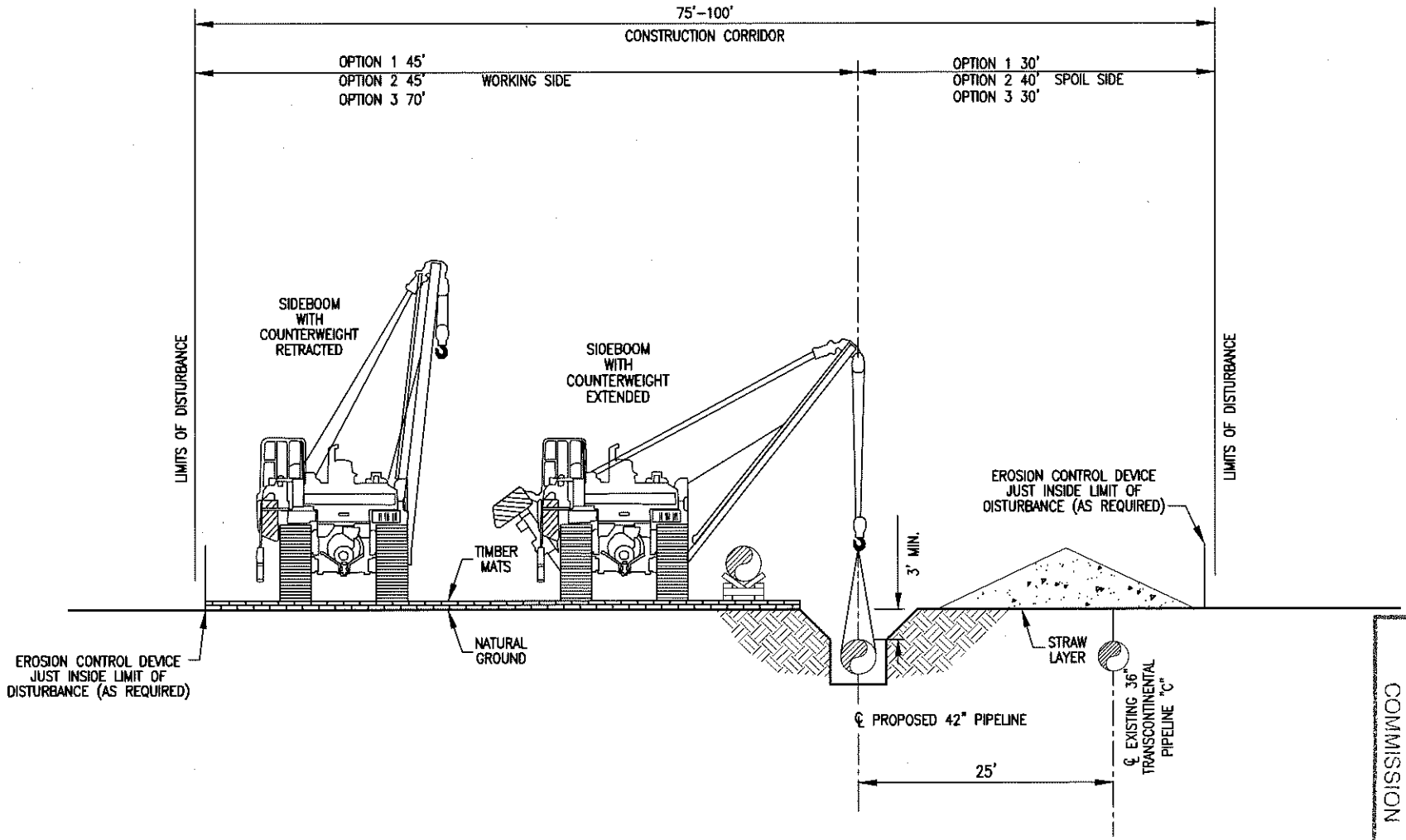
WO: 1199779	ROUTE I.D. 101-2/26/18	12:18pm 3/27/2018 Dan.Poulson K:\MAPPING\VA\MAIN\LOOP\1568_17\FERC\FERCX\Misc\F-MANA-D-XS-01.dwg	



TYPICAL CROSS SECTION FOR 42" PIPELINE
WITHIN SATURATED WETLAND AREAS – ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE

DRAWING NO.	REFERENCE TITLE

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

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APPROVED BY: EL	DATE: 01/09/18	DRAWING NUMBER: F-MANA-D-XS-01	SHEET 09 OF 13
WO: 1199779	ROUTE I.D. 101-2/26/18	12:19pm 3/27/2018 Don.Poulson K:\MAPPING\VA\MAIN\LOOP\156B_17\FERC\FERCX\Misc\F-MANA-D-XS-01.dwg	

WOOD GROUP USA, INC.

Cross Section Typical Name	Sheet Number	Begin MP	End MP
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1568.16	1568.16
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON SPOIL SIDE	5	1568.16	1568.19
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1568.19	1568.20
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1568.20	1568.27
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1568.27	1568.28
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES	8	1568.28	1568.37
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON SPOIL SIDE	5	1568.37	1568.38
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1568.38	1568.43
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1568.43	1568.44
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1568.44	1568.61
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1568.62	1568.66
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1568.70	1568.72
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1568.72	1568.73
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES	6	1568.88	1568.95
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1568.95	1568.98
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1568.98	1569.08
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1569.18	1569.19
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1569.25	1569.28
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1569.32	1569.33
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1569.34	1569.35
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1569.35	1569.69
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1569.69	1569.77
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES	6	1569.78	1569.81
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1569.81	1569.82
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON SPOIL SIDE	5	1569.82	1569.84
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES	8	1569.84	1569.86
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1569.86	1569.87
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1569.93	1569.96
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1569.96	1569.99
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1569.99	1570.10
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1570.10	1570.14
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1570.14	1570.32

DRAWING NO.	REFERENCE TITLE

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
0	04/04/18	DP	ISSUED FOR FERC FILING	1199779	W.	EL

DRAWN BY: FH	DATE: 01/09/18	ISSUED FOR BID:	SCALE: NTS
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APPROVED BY: EL	DATE: 01/09/18	DRAWING NUMBER: F-MANA-D-XS-01	SHEET 10 OF 13
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WOOD GROUP USA, INC.

Cross Section Typical Name	Sheet Number	Begin MP	End MP
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1570.32	1570.34
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1570.37	1570.42
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES	6	1570.43	1570.46
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1570.46	1570.54
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1570.54	1570.59
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1570.59	1570.66
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1570.66	1570.72
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1570.72	1570.82
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1570.82	1570.82
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1570.82	1570.87
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1570.87	1570.98
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1570.98	1571.02
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1571.02	1571.02
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1571.08	1571.09
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1571.09	1571.11
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1571.11	1571.30
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1571.30	1571.30
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1571.30	1571.46
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1571.46	1571.54
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1571.54	1571.61
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1571.61	1571.70
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1571.70	1571.77
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1571.77	1571.80
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1571.80	1571.86
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1571.86	1571.90
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1571.90	1571.94
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1571.94	1572.03
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1572.03	1572.06
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1572.06	1572.08
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1572.08	1572.16
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1572.16	1572.20
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1572.20	1572.26
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1572.26	1572.28
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1572.28	1572.46

DRAWING NO.	REFERENCE TITLE

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

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APPROVED BY: EL	DATE: 01/09/18	DRAWING NUMBER: F-MANA-D-XS-01	SHEET 11 OF 13
WO: 1199779	ROUTE I.D. 101-2/26/18	12:21pm 3/27/2018 Dan.Poulson K:\MAPPING\VA\MAIN\LOOP\1568_17\FERC\FERCX\Misc\F-MANA-D-XS-01-MILEPOST TABLE.dwg	

WOOD GROUP USA, INC.

Cross Section Typical Name	Sheet Number	Begin MP	End MP
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1572.46	1572.48
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1572.48	1572.52
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1572.52	1572.57
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1572.57	1572.64
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1572.64	1572.66
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON SPOIL SIDE	5	1572.66	1572.72
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES	8	1572.72	1572.76
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1572.76	1572.95
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1573.08	1573.14
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1573.14	1573.17
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1573.17	1573.34
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1573.34	1573.35
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1573.35	1573.50
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1573.50	1573.51
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1573.51	1573.65
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1573.65	1573.80
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1573.80	1573.83
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1573.86	1573.93
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1573.93	1573.96
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1573.96	1574.01
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1574.01	1574.19
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1574.19	1574.21
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1574.21	1574.23
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1574.23	1574.28
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1574.28	1574.28
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1574.28	1574.36
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1574.43	1574.44
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1574.44	1574.57
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES	8	1574.57	1574.60
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1574.60	1574.63
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S. ON BOTH SIDES	8	1574.63	1574.64
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1574.67	1574.69
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1574.69	1574.70
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1574.73	1574.77
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1574.77	1574.80

DRAWING NO.	REFERENCE TITLE

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
0	04/04/18	DP	ISSUED FOR FERC FILING	1199779	W.	EL

DRAWN BY: FH	DATE: 01/09/18	ISSUED FOR BID:	SCALE: NTS
CHECKED BY: W.	DATE: 01/09/18	ISSUED FOR CONSTRUCTION:	REV: 0
APPROVED BY: EL	DATE: 01/09/18	DRAWING NUMBER: F-MANA-D-XS-01	SHEET 12 OF 13
WO: 1199779	ROUTE I.D. 101-2/26/18	12:23pm 3/27/2018 Don.Poulson K:\MAPPING\VA\MAIN\LOOP\1568_17\FERC\FERCX\Misc\F-MANA-D-XS-01-MILEPOST TABLE.dwg	

WOOD GROUP USA, INC.

Cross Section Typical Name	Sheet Number	Begin MP	End MP
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1574.80	1574.82
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1574.86	1574.87
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1574.97	1575.27
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1575.27	1575.40
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1575.40	1575.48
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1575.48	1575.57
WITHIN SATURATED WETLAND AREAS - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	9	1575.57	1575.60
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1575.60	1575.64
TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	7	1575.64	1575.70
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE	3	1575.70	1575.71
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1575.76	1575.79
NO TOPSOIL STRIPPING - ADJACENT TO EXISTING TRANSCONTINENTAL PIPELINE WITH A.T.W.S.	4	1575.80	1575.82

DRAWING NO.	REFERENCE TITLE

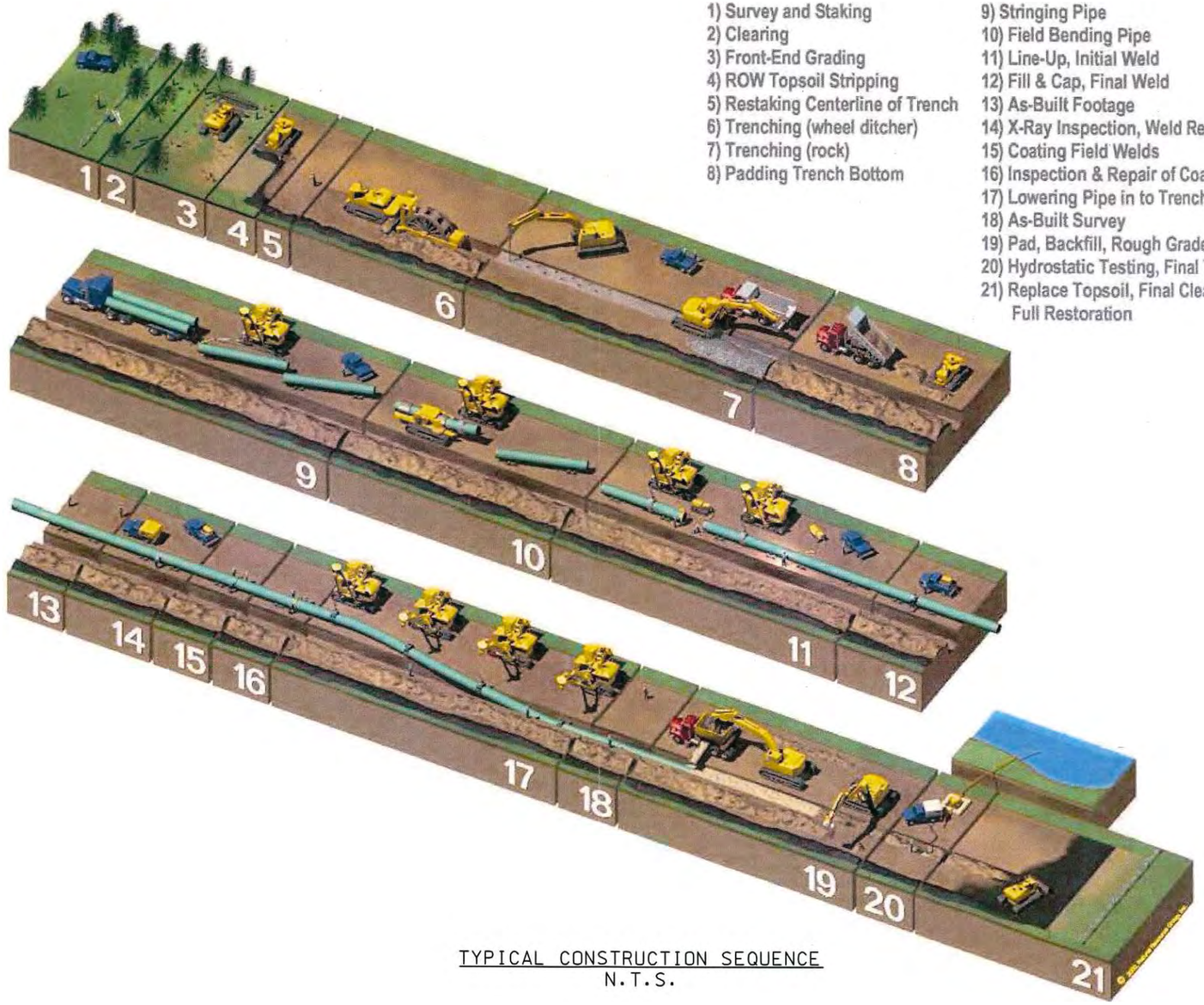
TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
TYPICAL RIGHT-OF-WAY CROSS-SECTION
SOUTHEASTERN TRAIL PROJECT
PROPOSED 42" MANASSAS LOOP
FAUQUIER AND PRINCE WILLIAM COUNTIES, VIRGINIA

Williams

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
0	04/04/18	DP	ISSUED FOR FERC FILING	1199779	W.	EL

DRAWN BY: FH	DATE: 01/09/18	ISSUED FOR BID:	SCALE: NTS
CHECKED BY: W.	DATE: 01/09/18	ISSUED FOR CONSTRUCTION:	REV: 0
APPROVED BY: EL	DATE: 01/09/18	DRAWING NUMBER: F-MANA-D-XS-01	SHEET 13
WO: 1199779	ROUTE I.D. 101-2/26/18	12:24pm 3/27/2018 Dan.Poulson K:\MAPPING\VA\MAIN\LOOP\1568_17\FERC\FERCX\Misc\F-MANA-D-XS-01-MILEPOST TABLE.dwg	OF 13

WOOD GROUP USA, INC.



1) Survey and Staking
2) Clearing
3) Front-End Grading
4) ROW Topsoil Stripping
5) Restaking Centerline of Trench
6) Trenching (wheel ditcher)
7) Trenching (rock)
8) Padding Trench Bottom
9) Stringing Pipe
10) Field Bending Pipe
11) Line-Up, Initial Weld
12) Fill & Cap, Final Weld
13) As-Built Footage
14) X-Ray Inspection, Weld Repair
15) Coating Field Welds
16) Inspection & Repair of Coating
17) Lowering Pipe in to Trench
18) As-Built Survey
19) Pad, Backfill, Rough Grade
20) Hydrostatic Testing, Final Tie-In
21) Replace Topsoil, Final Clean-Up, Full Restoration

TYPICAL CONSTRUCTION SEQUENCE
N.T.S.

DRAWING NO.	REFERENCE TITLE

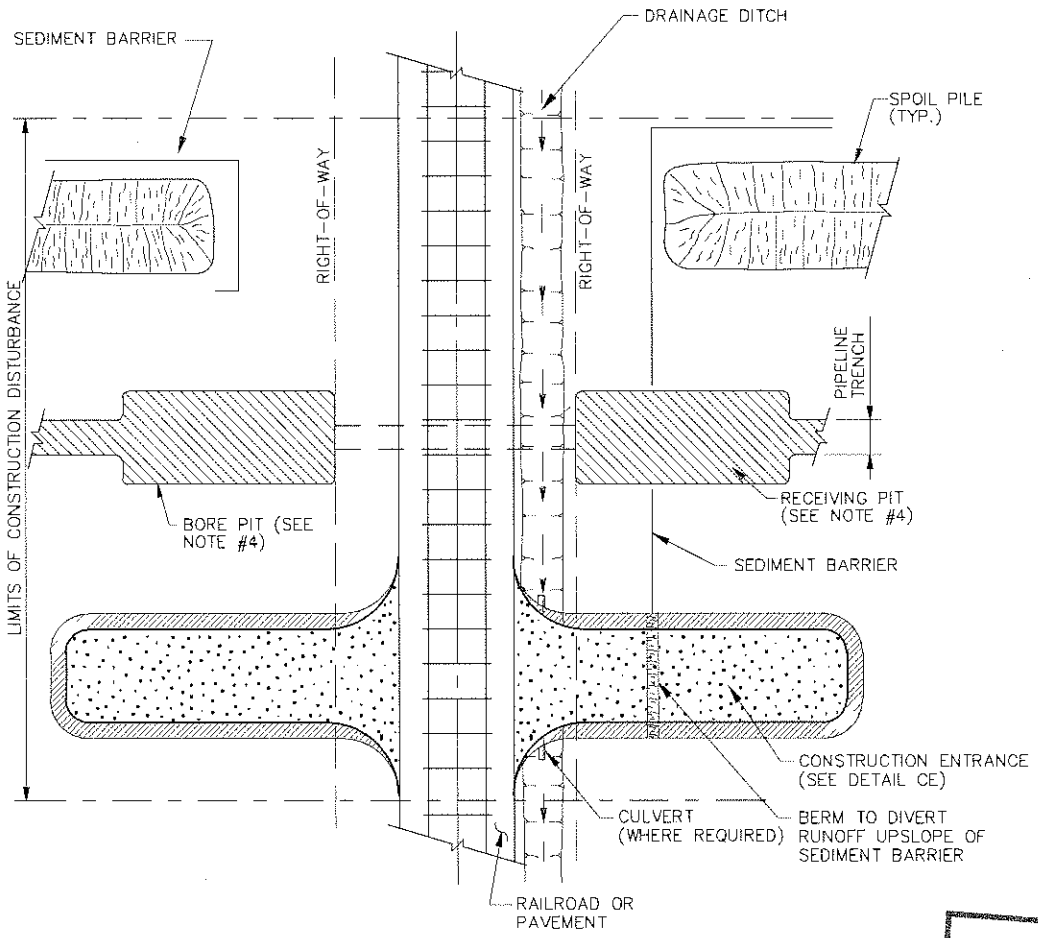
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
DALTON EXPANSION PROJECT

TYPICAL CONSTRUCTION SEQUENCE

Williams

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

DRAWN BY: RJB	DATE: 05/22/14	ISSUED FOR BID:	SCALE: NTS
CHECKED BY: MEH	DATE: 05/22/14	ISSUED FOR CONSTRUCTION:	
APPROVED BY: JWV	DATE: 12/03/13	DRAWING NUMBER: F-TYP-CS_01	SHEET 1
WO: XXXXXXX		1:42:18 PM 5/22/2014 K:\LP116883\Mapping\Exhibits\Typical Details\Construction Sequence.dwg	OF 1



PLAN

SCALE: N.T.S.

NOTES:

1. SEDIMENT BARRIER SHALL BE INSTALLED AT THE BASE OF SLOPES ADJACENT TO ROAD CROSSINGS WHERE VEGETATION IS DISTURBED, TO INTERCEPT SURFACE RUNOFF.
2. PROTECTION FOR SPOIL PILES SHALL BE INSTALLED ONLY WHERE SEDIMENT BARRIERS ACROSS THE ENTIRE DISTURBED AREA ARE NOT REQUIRED.
3. SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL PERMANENT REVEGETATION IS ESTABLISHED.
4. WATER REMOVED FROM BORE PIT AND RECEIVING PIT SHALL BE FILTERED THROUGH A DEWATERING STRUCTURE OR FILTER BAG.
5. IF WELL POINTING IS REQUIRED PRIOR TO EXCAVATING BORE PITS, CONTRACTOR SHALL CONSULT WITH COMPANY'S ENVIRONMENTAL INSPECTOR PRIOR TO COMMENCEMENT OF WORK IN ORDER TO DETERMINE PROPER DEWATERING LOCATION.
6. CONTRACTOR SHALL BE REQUIRED TO KEEP THE ROAD CLEAN OF DEBRIS AT ALL TIMES.
7. CONTRACTOR MAY ELECT TO UTILIZE SHEET PILING IN ORDER TO STABILIZE BORE PITS.
8. DEPENDING ON TOPOGRAPHY AND STATE REQUIREMENTS, SEDIMENT BARRIER MAY BE REQUIRED ACROSS THE ENTIRE CONSTRUCTION RIGHT OF WAY AT THE EDGE OF ROAD. IN ADDITION TO THIS DETAIL, REFER TO THE ENVIRONMENTAL ALIGNMENT DRAWINGS FOR PLACEMENT OF SEDIMENT BARRIERS.

BORED ROAD/RAILROAD CROSSING

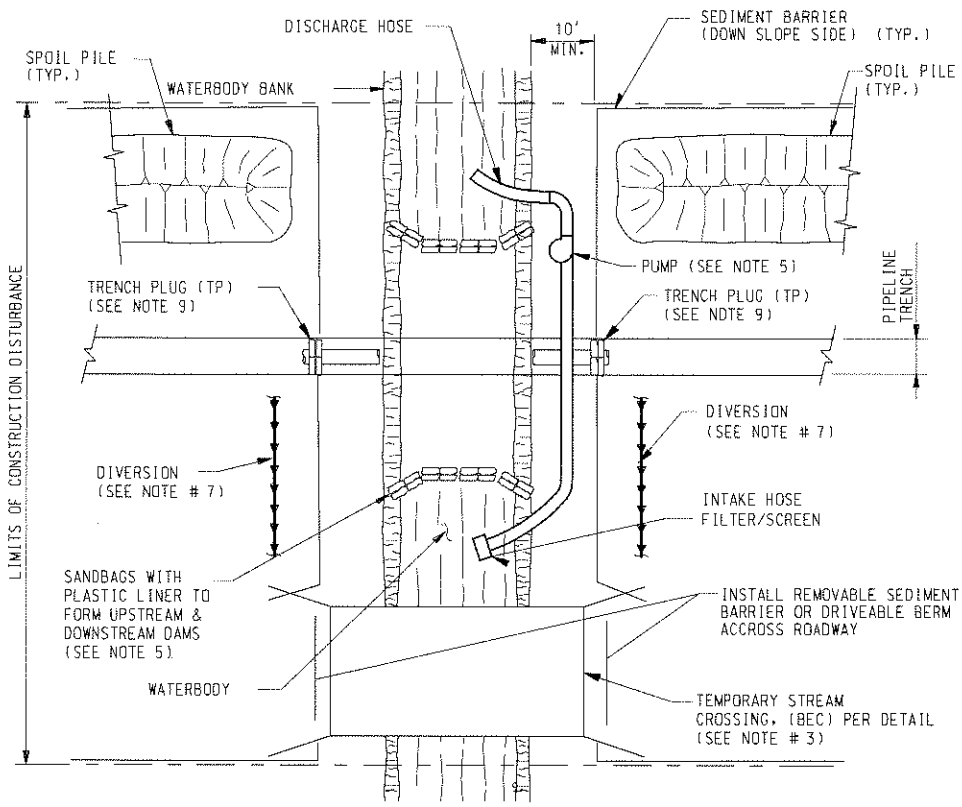
TEMPORARY EROSION CONTROL MEASURE

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

BORED ROAD/RAILROAD CROSSING

Williams



PLAN

SCALE: N.T.S.

NOTES:

1. SEDIMENT BARRIERS SHALL BE INSTALLED AS DEPICTED AND ALONG DOWN GRADIENT SIDES OF WORK AREAS AND STAGING AREAS SUCH THAT NO HEAVY SILT LADEN WATER ENTERS THE WATERBODY OR LEAVES THE CONSTRUCTION RIGHT-OF-WAY

2. HARD DITCH PLUGS MUST REMAIN IN PLACE AT CONVENIENT LOCATIONS TO SEPARATE MAINLINE DITCH FROM THE WATERBODY CROSSING UNTIL THE WATERBODY CROSSING IS INSTALLED AND BACKFILLED.

3. EQUIPMENT OPERATING IN THE WATERBODY SHALL BE LIMITED TO THAT NEEDED TO PERFORM CONSTRUCTION. IF OTHER TYPES OF EQUIPMENT MUST CROSS THE WATERBODY, CONTRACTOR SHALL PROVIDE AND USE A TEMPORARY STREAM CROSSING (BEC).

4. STAGING AREA(S) FOR WATERBODY CROSSING(S), WHEN REQUIRED, SHALL BE LOCATED AT LEAST 50 FEET FROM WATER'S EDGE AND SHALL BE OF A MINIMUM SIZE NEEDED FOR CONVENIENT PREPARATION.

5. IMPLEMENTATION OF THE DAM-AND-PUMP CROSSING METHOD MUST MEET THE FOLLOWING PERFORMANCE CRITERIA:
   (A) USE SUFFICIENT PUMPS, INCLUDING ON-SITE BACKUP PUMPS, TO MAINTAIN DOWNSTREAM FLOWS.
   (B) CONSTRUCT DAMS WITH MATERIALS THAT PREVENT SEDIMENT AND OTHER POLLUTANTS FROM ENTERING THE WATERBODY (E.G., SANDBAGS OR CLEAN GRAVEL WITH PLASTIC LINER).
   (C) SCREEN PUMP INTAKES;
   (D) PREVENT STREAMBED SCOUR AT PUMP DISCHARGE.
   (E) MONITOR THE DAM AND PUMPS TO ENSURE PROPER OPERATION THROUGHOUT THE WATERBODY CROSSING.

6. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED DAILY AND REPAIRED IF NECESSARY.

7. INSTALL DIVERSION TRENCHES AT THE BASE OF ALL SLOPES ADJACENT TO THE WATERBODY.

8. CHEMICALS, FUELS AND LUBRICATING OILS SHALL NOT BE STORED AND EQUIPMENT SHALL NOT BE REFUELED WITHIN 100 FEET OF THE WATERBODY.

9. INSTALL TRENCH PLUGS ON BOTH SIDES OF THE WATERBODY TO PREVENT DIVERSION OF WATER INTO UPLAND PORTIONS OF THE PIPELINE TRENCH AND TO KEEP ANY ACCUMULATED TRENCH WATER OUT OF THE WATERBODY.

10. CONTRACTOR SHALL POSTPONE GRADING OF RIGHT-OF-WAY ADJACENT TO WATERBODY UNTIL STAGING AREA IS PREPARED AND WORK IN THE WATERBODY IS READY TO COMMENCE.

DAM AND PUMP CROSSING

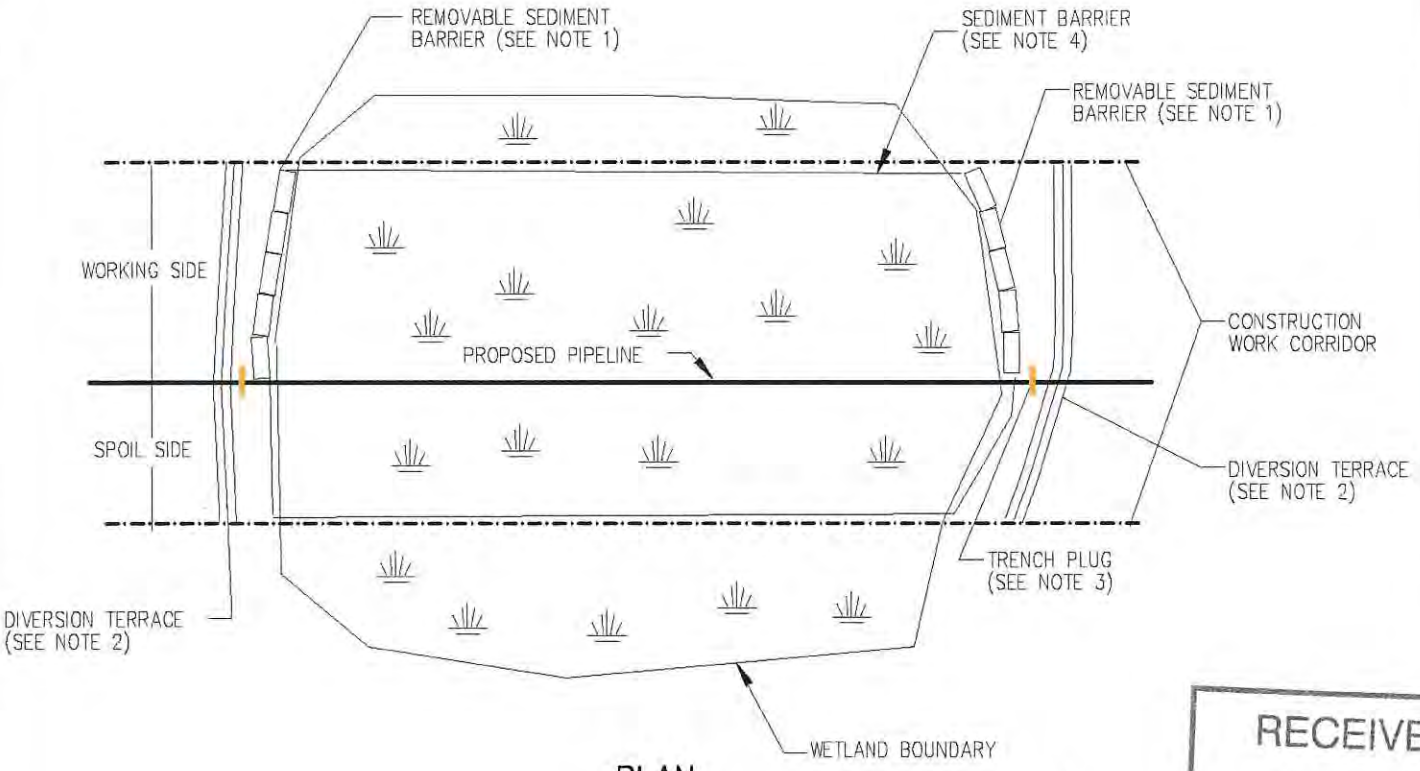
TEMPORARY EROSION CONTROL MEASURE

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

DAM AND PUMP CROSSING

Williams



PLAN

SCALE: N.T.S.

NOTES:

1. INSTALL REMOVABLE SEDIMENT BARRIERS (HAY BALES) OR DRIVEABLE BERMS ACROSS THE TRAVEL LANE AT BOTH WETLAND BOUNDARIES. THE REMOVABLE SEDIMENT BARRIERS CAN BE REMOVED DURING THE CONSTRUCTION DAY, BUT MUST BE RE-INSTALLED AFTER CONSTRUCTION HAS STOPPED FOR THE DAY AND/OR WHEN HEAVY PRECIPITATION IS IMMINENT.
2. INSTALL DIVERSION TERRACES IMMEDIATELY UPSLOPE OF BOTH WETLAND BOUNDARIES TO PREVENT SEDIMENT FROM ENTERING THE WETLAND.
3. INSTALL TRENCH PLUGS AT BOTH WETLAND BOUNDARIES TO PREVENT DIVERSION OF WATER INTO UPLAND PORTIONS OF THE PIPELINE TRENCH AND TO KEEP ANY ACCUMULATED UPLAND TRENCH WATER OUT OF WETLAND.
4. FOR TYPE II ("SATURATED") AND TYPE III ("FLOODED") WETLANDS, INSTALL SEDIMENT BARRIERS AT WETLAND BOUNDARIES AND ALONG BOTH WETLAND EDGES. FOR TYPE I ("DRY") WETLANDS, INSTALL SEDIMENT BARRIERS AT WETLAND BOUNDARIES, ALONG THE EDGE OF THE SPOIL SIDE OF THE CONSTRUCTION CORRIDOR AND ALONG THE DOWNSLOPE EDGE OF THE WETLAND. IF THE DOWNSLOPE EDGE OF THE WETLAND IS THE SPOIL SIDE, THEN SEDIMENT BARRIERS ARE NOT REQUIRED ON THE WORKING SIDE OF THE CORRIDOR UNLESS EQUIPMENT TRAVERSING THROUGH THE WETLAND CAUSES SPOIL AND SEDIMENT TO EXIT THE CONSTRUCTION CORRIDOR.

WETLAND CROSSING CONFIGURATION (TYPE I, II AND III WETLANDS)

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

WETLAND CROSSING CONFIGURATION
TYPE I, II AND III WETLANDS

Williams

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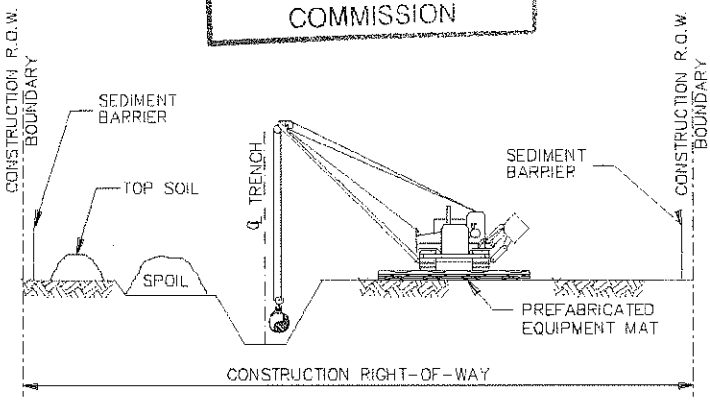
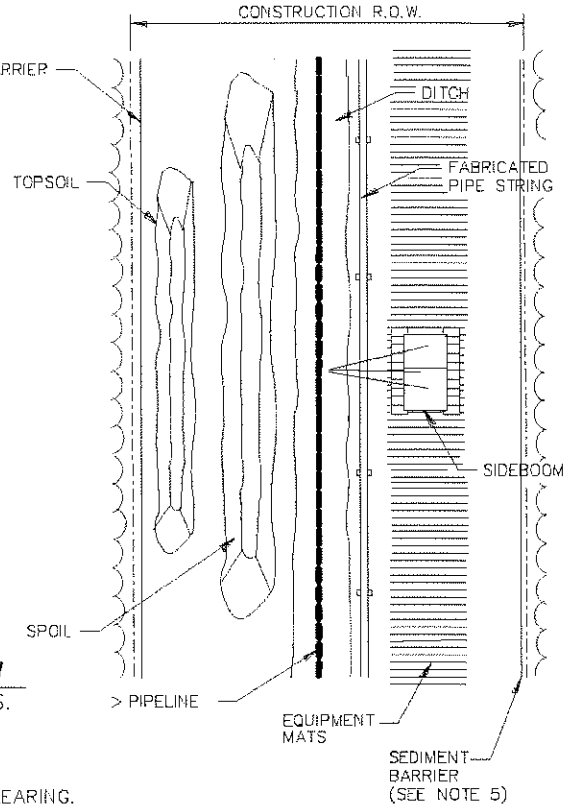


CROSS SECTION
SCALE: N.T.S.



PLAN VIEW
SCALE: N.T.S.

CONSTRUCTION PROCEDURE NOTES:

1. FLAG WETLAND BOUNDARIES AND INSTALL BOUNDARY SIGNS PRIOR TO CLEARING.
2. NO OVERNIGHT PARKING OR REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND. PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM WETLAND BOUNDARY. REFUEL STATIONARY EQUIPMENT AS PER SPCC PLAN.
3. INSTALL TEMPORARY SLOPE BREAKERS UPSLOPE OF WETLAND BOUNDARIES AS SHOWN ON DRAWINGS AND SPECIFICATIONS.
4. INSTALL PREFABRICATED EQUIPMENT MATS THROUGH ENTIRE WETLAND AREA ON THE WORKING SIDE OF THE CONSTRUCTION CORRIDOR.
5. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS AT OUTER BOUNDARIES OF THE WETLAND. INSTALL SEDIMENT BARRIERS ALONG THE EDGE OF THE SPOIL SIDE OF THE CONSTRUCTION CORRIDOR THROUGH THE WETLAND AND ALONG THE DOWN SLOPE EDGE OF THE WETLAND. IF THE DOWN SLOPE EDGE OF THE WETLAND IS THE SPOIL SIDE, THEN SEDIMENT BARRIERS ARE NOT REQUIRED ON THE WORKING SIDE OF THE CORRIDOR UNLESS EQUIPMENT TRAVERSING THROUGH THE WETLAND CAUSES SPOIL AND SEDIMENT TO EXIT THE CONSTRUCTION CORRIDOR.
6. LIMIT PULLING OF TREE STUMPS AND GRADING ACTIVITIES TO DIRECTLY OVER THE TRENCH LINE. DO NOT GRADE OR REMOVE STUMPS OR ROOT SYSTEMS FROM THE REST OF THE RIGHT-OF-WAY IN WETLANDS UNLESS THE CHIEF INSPECTOR AND COMPANY ENVIRONMENTAL INSPECTOR DETERMINE THAT SAFETY-RELATED CONSTRUCTION CONSTRAINTS REQUIRE REMOVAL OF TREE STUMPS FROM UNDER THE WORKING SIDE OF THE RIGHT-OF-WAY.
7. CONDUCT TRENCH LINE TOPSOIL STRIPPING (IF TOPSOIL IS NOT SATURATED). SALVAGE TOPSOIL TO ACTUAL DEPTH OR A MAXIMUM DEPTH OF 12 INCHES, AS DETERMINED BY THE COMPANY ENVIRONMENTAL INSPECTOR. SEGREGATED TOPSOIL PILE MAY BE LOCATED ON SPOIL SIDE, AS REQUIRED.
8. LEAVE HARD PLUGS AT THE EDGES OF WETLAND UNTIL JUST PRIOR TO TRENCHING.
9. TRENCHING THROUGH WETLANDS MAY PROCEED WHEN THE PIPE SECTION IS FABRICATED AND READY TO LAY. ONCE TRENCHING COMMENCES, CONSTRUCTION THROUGH THE WETLAND IS TO PROCEED CONTINUOUSLY UNTIL THE CROSSING IS COMPLETED, BACKFILLED AND RESTORED IN ORDER TO MINIMIZE THE LENGTH OF TIME THE TRENCH IS OPEN.
10. PIPE SECTION MAY BE FABRICATED WITHIN THE WETLAND ADJACENT TO PIPE TRENCH, OR IN STAGING AREA OUTSIDE THE WETLAND AND WALKED IN. NO CONCRETE COATING ACTIVITY WITHIN 100 FEET OF WETLAND BOUNDARY UNLESS APPROVED BY COMPANY ENVIRONMENTAL INSPECTOR.
11. LOWER-IN PIPE. PRIOR TO BACK FILLING TRENCH, INSTALL TRENCH PLUGS IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.
12. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY, REPLACE TOPSOIL AND INSTALL PERMANENT EROSION CONTROL.
13. REMOVE PREFABRICATED MATS FROM WETLANDS UPON COMPLETION.
14. SEED DISTURBED WETLANDS AREA AS DETERMINED BY THE ENVIRONMENTAL INSPECTOR AND AS SHOWN ON DRAWINGS.

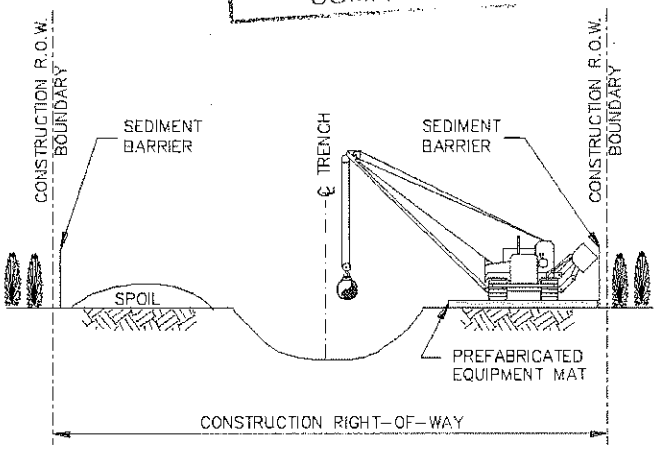
NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

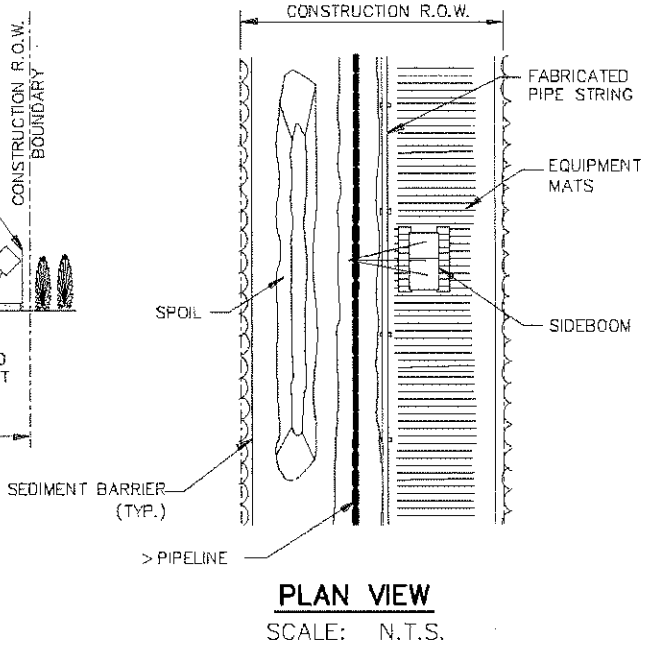
TYPE I "DRY WETLAND"
INSTALLATION PROCEDURE

Williams

%TIME% %PATH%



CROSS SECTION
SCALE: N.T.S.



PLAN VIEW
SCALE: N.T.S.

CONSTRUCTION PROCEDURE NOTES:

1. FLAG WETLAND BOUNDARIES AND INSTALL BOUNDARY SIGNS PRIOR TO CLEARING.
2. NO OVERNIGHT PARKING OR REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND. PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM WETLAND BOUNDARY. REFUEL STATIONARY EQUIPMENT AS PER SPCC PLAN.
3. INSTALL TEMPORARY SLOPE BREAKERS UPSLOPE OF WETLAND BOUNDARIES AS SHOWN ON DRAWINGS AND SPECIFICATIONS.
4. INSTALL PREFABRICATED EQUIPMENT MATS THROUGH ENTIRE WETLAND AREA ON THE WORKING SIDE OF THE CONSTRUCTION CORRIDOR.
5. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS AT OUTER BOUNDARIES OF WETLAND AND ALONG BOTH WETLAND EDGES.
6. LIMIT PULLING OF TREE STUMPS AND GRADING ACTIVITIES TO DIRECTLY OVER THE TRENCHLINE. DO NOT GRADE OR REMOVE STUMPS OR ROOT SYSTEMS FROM THE REST OF THE RIGHT-OF-WAY IN WETLANDS UNLESS THE CHIEF INSPECTOR AND COMPANY ENVIRONMENTAL INSPECTOR DETERMINE THAT SAFETY RELATED CONSTRUCTION CONSTRAINTS REQUIRE REMOVAL OF TREE STUMPS FROM UNDER THE WORKING SIDE OF THE RIGHT-OF-WAY.
7. TOPSOIL STRIPPING SHALL NOT BE REQUIRED IN SATURATED SOIL CONDITIONS.
8. LEAVE HARD PLUGS AT THE EDGES OF WETLAND UNTIL JUST PRIOR TO TRENCHING.
9. TRENCHING THROUGH WETLANDS MAY PROCEED WHEN THE PIPE SECTION IS FABRICATED AND READY TO LAY. ONCE TRENCHING COMMENCES, CONSTRUCTION THROUGH THE WETLAND IS TO PROCEED CONTINUOUSLY UNTIL THE CROSSING IS COMPLETED, BACKFILLED AND RESTORED IN ORDER TO MINIMIZE THE LENGTH OF TIME THE TRENCH IS OPEN.
10. PIPE SECTION MAY BE FABRICATED WITHIN THE WETLAND ADJACENT TO PIPE TRENCH, OR IN STAGING AREA OUTSIDE THE WETLAND AND WALKED IN. NO CONCRETE COATING ACTIVITY WITHIN 100 FEET OF WETLAND BOUNDARY, UNLESS APPROVED BY COMPANY ENVIRONMENTAL INSPECTOR.
11. LOWER-IN PIPE. PRIOR TO BACKFILLING, INSTALL TRENCH PLUGS IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.
12. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY AND INSTALL PERMANENT EROSION CONTROL.
13. REMOVE PREFABRICATED MATS FROM WETLANDS UPON COMPLETION.
14. SEED DISTURBED WETLAND AREA AS DETERMINED BY THE ENVIRONMENTAL INSPECTOR AND AS SHOWN ON DRAWINGS.

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
TYPE II "SATURATED WETLAND"
INSTALLATION PROCEDURE

Williams

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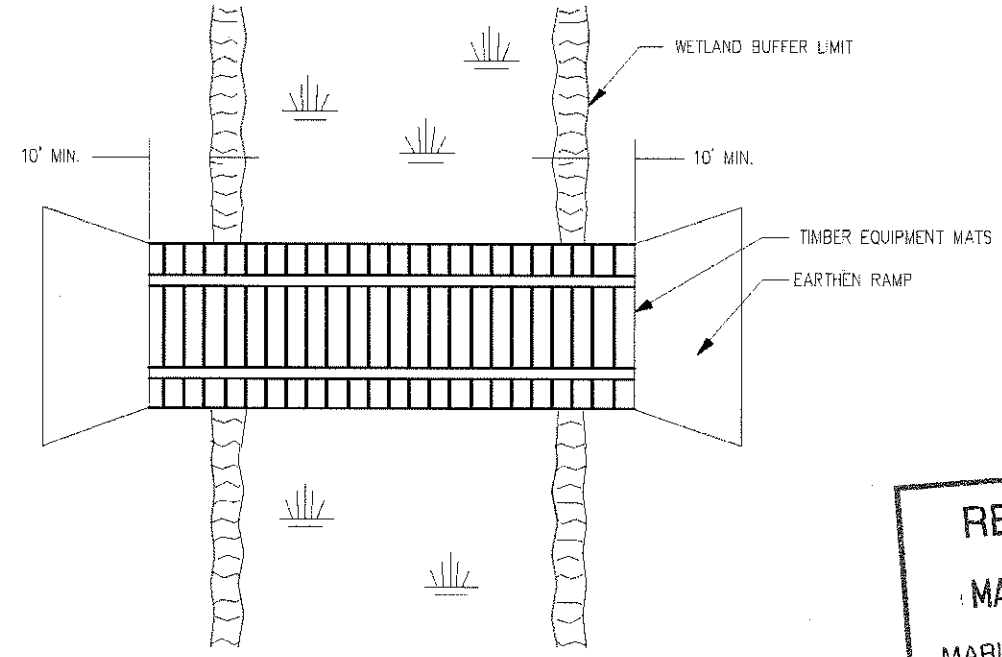
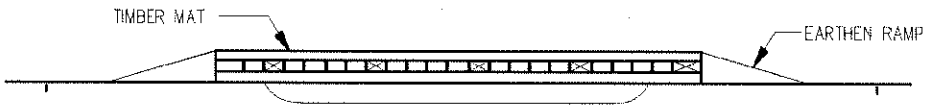


PLAN VIEW
SCALE: N.T.S.



ELEVATION
SCALE: N.T.S.

NOTES:

1. PERIODICALLY CHECK INSTALLATION AND REMOVE BUILD-UP OF SEDIMENT OR DEBRIS.
2. MATERIALS PLACED IN WETLANDS SHALL BE COMPLETELY REMOVED DURING FINAL CLEAN-UP. REMOVAL OF THIS STRUCTURE IS NOT CONTINGENT UPON ESTABLISHMENT OF PERMANENT VEGETATION.
3. IF A WATERBODY IS LOCATED WITHIN A WETLAND SYSTEM, EXTEND TIMBER EQUIPMENT MATS TO THE BRIDGE EQUIPMENT CROSSING (BEC) USED TO CROSS THE WATERBODY IN ORDER TO ALLOW FOR CONTINUOUS TIMBER EQUIPMENT MAT COVERAGE THROUGH THE WETLAND AND WATERBODY AREA.
4. USE ADDITIONAL TIMBER MAT LAYERS TO RAISE CROSSING ABOVE GRADE WHERE POOR SOIL CONDITIONS EXIST.
5. TIMBER EQUIPMENT MATS SHALL EXTEND A MINIMUM OF 10 FEET OUTSIDE OF THE WETLAND BOUNDARIES.
6. INSTALL EARTHEN RAMP APPROACHES TO TIMBER EQUIPMENT MATS. EARTHEN RAMPS TO BE CONSTRUCTED OF UPLAND MATERIAL, TOP SOIL SHALL NOT BE USED TO CONSTRUCT EARTHEN RAMPS.

WETLAND EQUIPMENT CROSSING

WEC

TEMPORARY EROSION CONTROL MEASURE

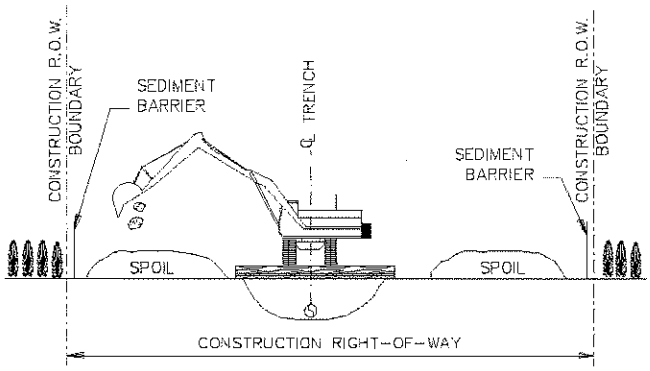
NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

Williams

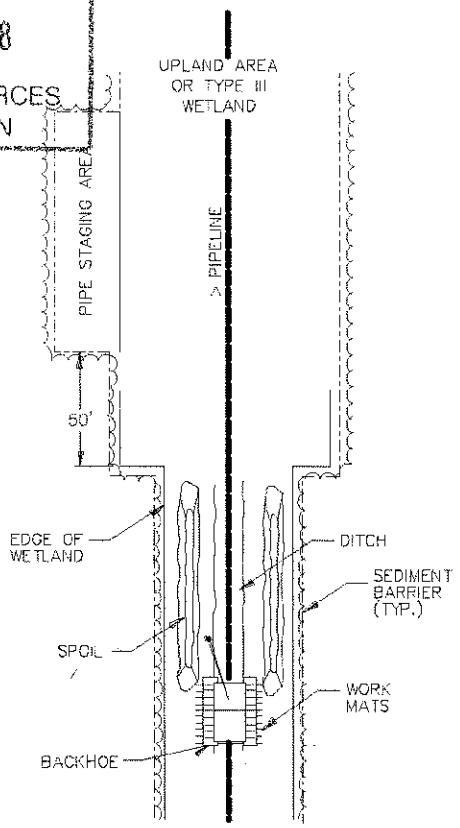
WEC WETLAND EQUIPMENT CROSSING

%TIME% %PATH%



CROSS SECTION

SCALE: N.T.S.



PLAN VIEW

SCALE: N.T.S.

CONSTRUCTION PROCEDURE NOTES:

1. FLAG WETLAND BOUNDARIES AND INSTALL WETLAND BOUNDARY SIGNS PRIOR TO CLEARING.
2. NO OVERNIGHT PARKING OR REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND. PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM WETLAND BOUNDARY. REFUEL STATIONARY EQUIPMENT AS PER SPCC PLAN.
3. INSTALL TEMPORARY SLOPE BREAKERS UPSLOPE OF WETLAND BOUNDARIES AS SHOWN ON DRAWINGS AND SPECIFICATIONS.
4. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS AT OUTER BOUNDARIES OF WETLAND AND ALONG BOTH WETLAND EDGES.
5. LIMIT PULLING OF TREE STUMPS AND GRADING ACTIVITIES TO DIRECTLY OVER TRENCHLINE. DO NOT GRADE OR REMOVE STUMPS OR ROOT SYSTEMS FROM THE REST OF THE RIGHT-OF-WAY IN WETLANDS UNLESS THE CHIEF INSPECTOR AND COMPANY ENVIRONMENTAL INSPECTOR DETERMINE THAT SAFETY RELATED CONSTRUCTION CONSTRAINTS REQUIRE REMOVAL OF TREE STUMPS FROM UNDER THE WORKING SIDE OF THE RIGHT-OF-WAY.
6. TOPSOIL STRIPPING SHALL NOT BE REQUIRED IN SATURATED SOIL CONDITIONS.
7. UTILIZE AMPHIBIOUS EXCAVATORS (PONTOON MOUNTED BACKHOES) OR TRACKED BACKHOES SUPPORTED BY PREFABRICATED EQUIPMENT MATS OR FLOATS, TO EXCAVATE TRENCH. IF PREFABRICATED EQUIPMENT MATS ARE USED FOR STABILIZATION, THE BACKHOE SHALL GRADUALLY MOVE ACROSS THE WETLAND BY MOVING THE MATS FROM IMMEDIATELY BEHIND TO IMMEDIATELY IN FRONT OF THE BACKHOE'S PATH.
8. FABRICATE PIPE IN A STAGING AREA OUTSIDE THE TYPE III WETLAND AS INDICATED ON THE CONSTRUCTION DRAWINGS. NO CONCRETE COATING ACTIVITY WITHIN 100 FEET OF WETLAND BOUNDARY, UNLESS APPROVED BY COMPANY ENVIRONMENTAL INSPECTOR.
9. LEAVE HARD PLUGS AT THE EDGE OF TYPE III WETLAND UNTIL JUST PRIOR TO PIPE PLACEMENT.
10. FLOAT PIPE IN PLACE, LOWER-IN, INSTALL TRENCH PLUGS IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS, AND BACKFILL.
11. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY AND INSTALL PERMANENT EROSION CONTROL.
12. REMOVE ANY MATS UTILIZED TO SUPPORT AMPHIBIOUS EQUIPMENT FROM WETLANDS UPON COMPLETION.
13. WETLANDS CROSSED USING PUSH/PULL METHOD TEND TO BE TOO WET FOR EFFECTIVE SEEDING. HOWEVER, IF THE SITE IS DRY ENOUGH AND IF DIRECTED BY THE ENVIRONMENTAL INSPECTOR, THE RIGHT-OF-WAY SHALL BE SEEDED IN ACCORDANCE WITH DRAWINGS.

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

TYPE III "FLOODED WETLAND"
INSTALLATION PROCEDURE

Williams

%TIME% %PATH%

TABLE 1-5
Road Crossings for the Southeastern Trail Project

Road Name	Transco Mainline MP	Existing Use	Surface Type	Crossing Method
Southern / Manassas Loop				
Bristersburg Road	1568.2	Public	Asphalt	Open Cut
Old Calverton Road	1568.7	Public	Gravel	Open Cut
Catlett Road	1569.2	Public	Asphalt	Uncased Bore
Private Road	1569.3	Private	Gravel	Open Cut
Elioak Lane	1570.8	Private	Asphalt	Open Cut
Old Dumfries Road	1570.8	Public	Asphalt	Uncased Bore
Private Road	1571.3	Private	Dirt	Open Cut
Private Road	1572.2	Private	Gravel	Open Cut
Prince William Road	1573.4	Public	Gravel	Open Cut
Prince William Road (Private)	1573.2	Private	Gravel	Open Cut
Private Road	1573.2	Private	Gravel	Open Cut
Fauquier Drive	1573.4	Public	Asphalt	Uncased Bore
Private Road	1574.3	Private	Dirt	Open Cut
Reid Lane	1574.4	Public	Asphalt	Open Cut
Fitzwater Drive	1574.9	Public	Asphalt	Open Cut
Reid Lane	1575.7	Public	Asphalt	Open Cut

TABLE 1-6
Railroad Crossings for the Southeastern Trail Project

Road Name	Transco Mainline MP	Existing Use	Surface Type	Crossing Method
Southern / Manassas Loop				
Norfolk Southern Railroad	1569.2	Private	Gravel	Uncased Bore

TABLE 1-7
Major Utility Line Crossings for the Southeastern Trail Project

Utility Description	Transco Mainline MP	Utility Owner	Status [a]	Crossing Method
Southern / Manassas Loop				
Communication Fiber Cable	1568.2	AT&T	Active	Open Cut
Communication Fiber Cable	1568.8	AT&T	Active	Open Cut
Communication Fiber Cable	1569.2	Sprint	Active	Uncased Bore
24-Inch Natural Gas Pipeline	1575.7	CNG Transmission Corp.	Active	Open Cut
High Voltage Overhead Power Line	1575.7	Dominion Virginia Power	Active	--
High Voltage Overhead Power Line	1575.7	Dominion Virginia Power	Active	--
High Voltage Overhead Power Line	1575.8	Dominion Virginia Power	Active	--
High Voltage Overhead Power Line	1575.8	Dominion Virginia Power	Active	--

a - Unless otherwise advised, Transco will assume that all utilities are active and will make the appropriate notifications prior to working under or around major below and aboveground utility lines.